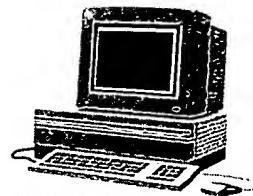


# BioTech-Chem Library

## Search Results

### Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact *the BioTech-Chem searcher* who conducted the search *or contact:*

**Mary Hale, Supervisor, 308-4258**  
CM-1 Room 1E01

#### ***Voluntary Results Feedback Form***

➤ *I am an examiner in Workgroup:* \_\_\_\_\_ (*Example: 1610*)

➤ *Relevant prior art found, search results used as follows:*

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- Foreign Patent(s)
- Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- Results verified the lack of relevant prior art (helped determine patentability).
- Search results were not useful in determining patentability or understanding the invention.

#### **Other Comments:**

---

Drop off completed forms at the **Circulation Desk CM-1**, or send to Mary Hale, **CM1-1E01** or e-mail [mary.hale@uspto.gov](mailto:mary.hale@uspto.gov).

=> fil reg  
FILE 'REGISTRY' ENTERED AT 14:21:43 ON 04 MAY 2003  
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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Jan Delaval  
Reference Librarian  
Biotechnology & Chemical Library  
CM1 1E07 - 703-308-4498  
jan.delaval@uspto.gov

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 2 MAY 2003 HIGHEST RN 509953-09-7  
DICTIONARY FILE UPDATES: 2 MAY 2003 HIGHEST RN 509953-09-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d ide can 17

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS  
RN 6788-84-7 REGISTRY  
CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 1,2-Dioxacyclobutane  
CN Dioxetane  
FS 3D CONCORD  
MF C2 H4 O2  
CI RPS  
LC STN Files: AGRICOLA, BEILSTEIN\*, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CIN, DETHERM\*, MEDLINE, PIRA, PROMT, SPECINFO, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

O—O  
□

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

235 REFERENCES IN FILE CA (1957 TO DATE)  
140 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
236 REFERENCES IN FILE CAPLUS (1957 TO DATE)  
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 138:232942

REFERENCE 2: 138:204648

REFERENCE 3: 138:69486

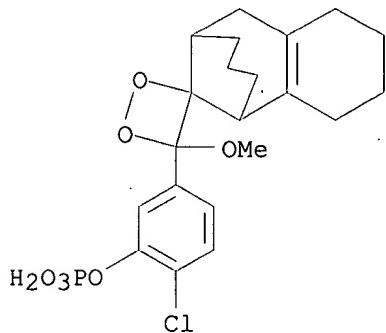
REFERENCE 4: 137:306956

REFERENCE 5: 137:246527

REFERENCE 6: 137:244282  
 REFERENCE 7: 137:176455  
 REFERENCE 8: 137:106074  
 REFERENCE 9: 137:62928  
 REFERENCE 10: 137:2769

=> d ide can tot l10

L10 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2003 ACS  
 RN 260791-04-6 REGISTRY  
 CN Phenol, 2-chloro-5-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxyspiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)  
 MF C21 H26 Cl O7 P . 2 Na  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

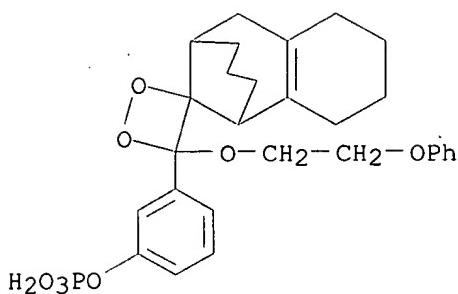


●2 Na

2 REFERENCES IN FILE CA (1957 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1957 TO DATE)

REFERENCE 1: 136:147113  
 REFERENCE 2: 132:207956

L10 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2003 ACS  
 RN 260791-02-4 REGISTRY  
 CN Phénol, 3-[1',2',3',4',5',6',7',8',9',10'-decahydro-4-(2-phenoxyethoxy)spiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)  
 MF C28 H33 O8 P . 2 Na  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

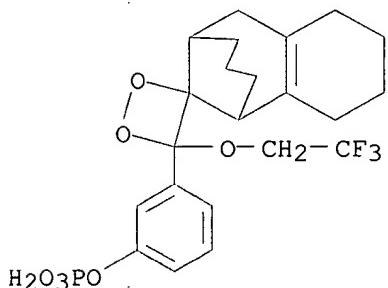


●2 Na

1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

REFERENCE 1: 132:207956

L10 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2003 ACS  
 RN 260791-00-2 REGISTRY  
 CN Phenol, 3-[1',2',3',4',5',6',7',8',9',10'-decahydro-4-(2,2,2-trifluoroethoxy)spiro[1,2-dioxetane-3,11'-(5,9)methanobenzocycloocten]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)  
 MF C22 H26 F3 O7 P . 2 Na  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

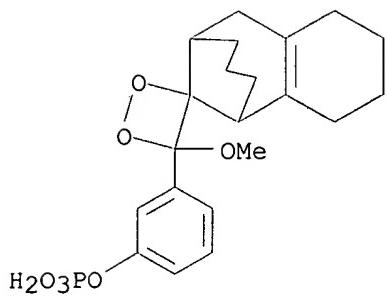


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1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

REFERENCE 1: 132:207956

L10 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2003 ACS  
 RN 260790-98-5 REGISTRY  
 CN Phenol, 3-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxyspiro[1,2-dioxetane-3,11'-(5,9)methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)  
 MF C21 H27 O7 P . 2 Na  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

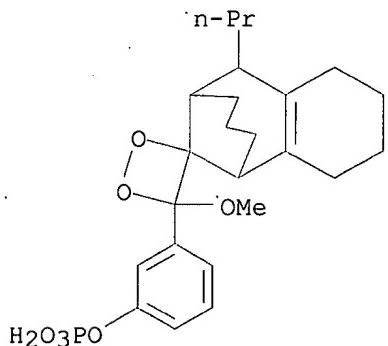


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1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

REFERENCE 1: 132:207956

L10 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2003 ACS  
RN 260790-97-4 REGISTRY  
CN Phénol, 3-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxy-10'-propylspiro[1,2-dioxetane-3,11'-(5,9)methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)  
MF C24 H33 O7 P . 2 Na  
SR CA  
LC STN Files: CA, CAPLUS, USPATFULL

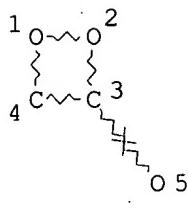


●2 Na

1 REFERENCES IN FILE CA (1957 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1957 TO DATE)

REFERENCE 1: 132:207956

=> d sta que 113  
L11 STR



*Generic  
Structure -  
Open*

## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L13 742 SEA FILE=REGISTRY SSS FUL L11

100.0% PROCESSED . 4468 ITERATIONS  
SEARCH TIME: 00.00.01

742 ANSWERS

=> d his

(FILE 'HOME' ENTERED AT 13:34:14 ON 04 MAY 2003)  
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 13:34:25 ON 04 MAY 2003  
E US20020013250/PN

L1 1 S E3  
E GIRI B/AU  
L2 31 S E3,E5,E11,E12  
L3 1 S L1 AND L2  
L4 30 S L2 NOT L3  
SEL RN L3

FILE 'REGISTRY' ENTERED AT 13:37:16 ON 04 MAY 2003

L5 28 S E1-E28  
L6 1 S L5 AND C21H26CLO7P  
L7 1 S L5 AND O2C2/ES  
L8 6 S 61222.4/RID  
L9 5 S L8 NOT RPS/CI  
L10 5 S L6,L9  
L11 STR  
L12 41 S L11  
L13 742 S L11 FUL  
SAV TEMP L13 GITOMER883/A  
L14 737 S L13 NOT L10

FILE 'HCAPLUS' ENTERED AT 13:42:49 ON 04 MAY 2003

L15 2 S L10  
L16 235 S L7  
L17 142 S L7/D  
L18 1 S L15 AND L16,L17  
L19 2 S L15,L18  
L20 541 S L14  
L21 712 S L16,L17,L20  
L22 4 S L21 AND L1-L4  
L23 4 S L19,L22

L24 22218 S BETA GALACTOSIDASE  
 L25 48559 S (ALK OR ALKALIN?) () PHOSPHATASE  
 L26 21874 S CHOLINESTERASE

FILE 'REGISTRY' ENTERED AT 13:48:45 ON 04 MAY 2003  
 L27 3 S 9001-78-9 OR 9031-11-2 OR 9001-08-5

FILE 'HCAPLUS' ENTERED AT 13:49:02 ON 04 MAY 2003  
 L28 56600 S L27  
 L29 164 S L21 AND L24-L26  
 L30 141 S L21 AND L28  
 L31 116 S L21 AND ENZYM?/SC, SX, CW  
 L32 223 S L29-L31  
     E CHEMILUMINESCENCE/CT  
     E E3+ALL  
     E E2+ALL  
 L33 7858 S E5, E4+NT  
     E E3+ALL  
 L34 200292 S E3+NT  
     E E45+ALL  
     E E9+ALL  
 L35 713 S E4, E5  
 L36 39790 S E3+NT  
     E E6+ALL  
     E E8+ALL  
 L37 2486 S E4-E6, E3+NT  
 L38 357 S L21 AND L33-L37  
 L39 135 S L38 AND L32  
 L40 223 S L32, L39  
     SEL RN L23

FILE 'REGISTRY' ENTERED AT 14:03:41 ON 04 MAY 2003  
 L41 102 S E1-E102  
 L42 13 S L41 AND L13  
 L43 1 S L41 AND L7  
 L44 14 S L42, L43  
 L45 14 S L10, L44  
 L46 3 S L41 AND L27  
 L47 85 S L41 NOT L42-L46  
 L48 6 S L47 AND PMS/CI  
 L49 5 S L48 NOT CH2O

FILE 'HCAPLUS' ENTERED AT 14:07:47 ON 04 MAY 2003  
 L50 31 S L49  
 L51 16 S L50 AND L40  
 L52 19 S L50 AND L21  
 L53 19 S L51, L52

FILE 'REGISTRY' ENTERED AT 14:12:36 ON 04 MAY 2003  
 L54 1 S 9017-80-5  
 L55 1 S 135781-07-6  
 L56 1 S 135781-07-6  
 L57 1 S 146985-47-9  
 L58 1 S 161697-30-9  
 L59 1 S 181871-50-1

FILE 'HCAPLUS' ENTERED AT 14:14:30 ON 04 MAY 2003  
 L60 468 S L54-L59  
 L61 15 S L60 AND L21  
 L62 24 S L53, L61

FILE 'REGISTRY' ENTERED AT 14:15:13 ON 04 MAY 2003  
 L63 79 S L47 NOT L48-L49

L64 79 S L63 NOT L13  
 L65 18 S L64 AND L5  
 L66 61 S L64 NOT L65  
 L67 1 S L66 AND METHANOL  
 L68 19 S L65, L67

FILE 'HCAPLUS' ENTERED AT 14:17:09 ON 04 MAY 2003

L69 8 S L68 AND L62  
 L70 11 S L69, L23  
 L71 11 S L70 AND L1-L4, L15-L26, L28-L40, L50-L53, L60-L62, L69-L70  
 L72 9 S L71 AND ?POLYM?  
 L73 2 S L71 NOT L72  
 L74 11 S L73, L72  
 L75 4 S L74 AND GIRI ?/AU  
 L76 7 S L74 NOT L75  
 L77 2 S L76 AND SAPPHIR? II  
 L78 7 S L76, L77  
 L79 10 S L74 AND DIOXETAN?  
 L80 11 S L74-L79  
 L81 7 S L80 NOT GIRI ?/AU  
 L82 4 S L80 NOT L81

FILE 'REGISTRY' ENTERED AT 14:21:43 ON 04 MAY 2003

=> fil hcaplus  
 FILE 'HCAPLUS' ENTERED AT 14:22:52 ON 04 MAY 2003  
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FILE COVERS 1907 - 4 May 2003 VOL 138 ISS 19  
 FILE LAST UPDATED: 2 May 2003 (20030502/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 182 all hitstr tot

L82 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:90601 HCAPLUS  
 DN 136:147113  
 TI Single molecule detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-soluble, water-insoluble or partially-water soluble polymers  
 IN Giri, Brij P.  
 PA USA  
 SO U.S. Pat. Appl. Publ., 19 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C12S009-00

ICS C11D003-00

NCL 510392000

CC 7-1 (Enzymes)

FAN.CNT 1

|      | PATENT NO.      | KIND | DATE     | APPLICATION NO. | DATE         |
|------|-----------------|------|----------|-----------------|--------------|
| PI   | US 2002013250   | A1   | 20020131 | US 2001-883586  | 20010618 <-- |
| PRAI | US 2000-212883P | P    | 20000617 |                 |              |

OS MARPAT 136:147113

AB A chemiluminescent 1,2-dioxetane includes an enzyme-triggerable stable 1,2-dioxetane; a polymeric enhancer which is either an ammonium or phosphonium salt of a polyvinylbenzyl chloride; and an aq. enzyme diluent or stabilizer comprising a metal halide, alc., amine-based salt, or blood or plant protein. The system is efficacious for single mol. detection of enzymes such as alk. phosphatase, .beta.-galactosidase, and cholinesterase. Thus, chemiluminescence detn. of alk. phosphatase using [(4-methoxy)-4-(3-phosphoryloxy-4-chlorophenyl)sipro[1,2-dioxetane-3,3-tricyclo[7.3.1.02,7]tridec-2,7-ene] disodium salt and polyvinylbenzyltrioctylphosphonium chloride was demonstrated.

ST phosphatase chemiluminescence detn dioxetane polyvinylbenzyltrioctylphosphonium chloride

IT Alcohols, analysis  
Halides

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(enzyme stabilizer; single mol. detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-sol., water-insol. or partially-water sol. polymers)

IT Proteins

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(of blood or plant, enzyme stabilizer; single mol. detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-sol., water-insol. or partially-water sol. polymers)

IT Amines, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(salts, enzyme stabilizer; single mol. detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-sol., water-insol. or partially-water sol. polymers)

IT Chemiluminescence spectroscopy

(single mol. detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-sol., water-insol. or partially-water sol. polymers)

IT Polymers, analysis

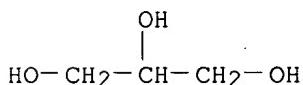
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(trialkylammonium- or trialkylphosphonium; single mol. detection of enzymes using enhanced chemiluminescence from 1,2-dioxetanes and water-sol., water-insol. or partially-water sol. polymers )

IT 56-81-5, Glycerol, analysis 64-17-5, Ethanol, analysis

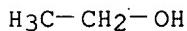
67-63-0, Isopropyl alcohol, analysis 71-23-8, Propyl alcohol, analysis 71-36-3, Butyl alcohol, analysis 75-65-0, tert-Butyl alcohol, analysis 77-86-1, Tris 78-83-1, Isobutyl alcohol, analysis 78-92-2, sec-Butyl alcohol 102-71-6, Triethanolamine, analysis 107-21-1, Ethylene glycol, analysis 109-86-4, Ethylene glycol methyl ether 111-42-2, Diethanolamine, analysis 124-68-5, 2-Amino-2-methyl-1-propanol 7447-40-7, Potassium chloride, analysis 7646-85-7, Zinc chloride, analysis 7647-14-5, Sodium chloride, analysis 7786-30-3, Magnesium chloride, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(enzyme stabilizer; single mol. detection of enzymes using enhanced

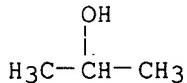
chemiluminescence from 1,2-dioxetanes and water-sol.,  
water-insol. or partially-water sol. polymers)  
IT 9001-08-5, Cholinesterase 9001-78-9  
9031-11-2,  $\beta$ -Galactosidase  
RL: ANT (Analyte); ANST (Analytical study)  
(single mol. detection of enzymes using enhanced chemiluminescence from  
1,2-dioxetanes and water-sol., water-insol. or  
partially-water sol. polymers)  
IT 6788-84-7D, 1,2-Dioxetane, derivs. 260791-04-6  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(single mol. detection of enzymes using enhanced chemiluminescence from  
1,2-dioxetanes and water-sol., water-insol. or  
partially-water sol. polymers)  
IT 72852-29-0, Polyvinylbenzyltributylammonium chloride  
77519-21-2 151346-37-1 151346-38-2  
393869-24-4  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(single mol. detection of enzymes using enhanced chemiluminescence from  
1,2-dioxetanes and water-sol., water-insol. or  
partially-water sol. polymers)  
IT 56-81-5, Glycerol, analysis 64-17-5, Ethanol, analysis  
67-63-0, Isopropyl alcohol, analysis 71-23-8, Propyl  
alcohol, analysis 71-36-3, Butyl alcohol, analysis  
75-65-0, tert-Butyl alcohol, analysis 77-86-1, Tris  
78-83-1, Isobutyl alcohol, analysis 78-92-2, sec-Butyl  
alcohol 102-71-6, Triethanolamine, analysis 107-21-1,  
Ethylene glycol, analysis 109-86-4, Ethylene glycol methyl ether  
111-42-2, Diethanolamine, analysis 124-68-5,  
2-Amino-2-methyl-1-propanol 7447-40-7, Potassium chloride,  
analysis 7646-85-7, Zinc chloride, analysis 7647-14-5,  
Sodium chloride, analysis 7786-30-3, Magnesium chloride,  
analysis  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(enzyme stabilizer; single mol. detection of enzymes using enhanced  
chemiluminescence from 1,2-dioxetanes and water-sol.,  
water-insol. or partially-water sol. polymers)  
RN 56-81-5 HCPLUS  
CN 1,2,3-Propanetriol (9CI) (CA INDEX NAME)



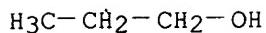
RN 64-17-5 HCPLUS  
CN Ethanol (9CI) (CA INDEX NAME)



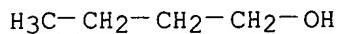
RN 67-63-0 HCPLUS  
CN 2-Propanol (9CI) (CA INDEX NAME)



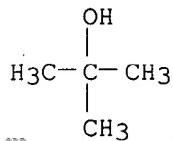
RN 71-23-8 HCPLUS  
CN 1-Propanol (9CI) (CA INDEX NAME)



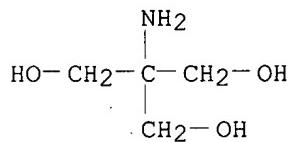
RN 71-36-3 HCAPLUS  
 CN 1-Butanol (9CI) (CA INDEX NAME)



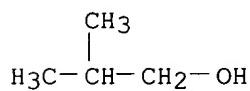
RN 75-65-0 HCAPLUS  
 CN 2-Propanol, 2-methyl- (9CI) (CA INDEX NAME)



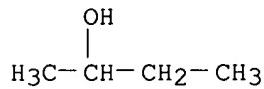
RN 77-86-1 HCAPLUS  
 CN 1,3-Propanediol, 2-amino-2-(hydroxymethyl)- (8CI, 9CI) (CA INDEX NAME)



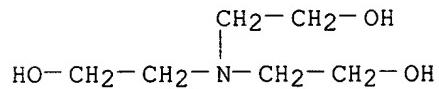
RN 78-83-1 HCAPLUS  
 CN 1-Propanol, 2-methyl- (9CI) (CA INDEX NAME)



RN 78-92-2 HCAPLUS  
 CN 2-Butanol (9CI) (CA INDEX NAME)



RN 102-71-6 HCAPLUS  
 CN Ethanol, 2,2',2'''-nitrilotris- (9CI) (CA INDEX NAME)



RN 107-21-1 HCAPLUS  
 CN 1,2-Ethanediol (9CI) (CA INDEX NAME)

HO—CH<sub>2</sub>—CH<sub>2</sub>—OH

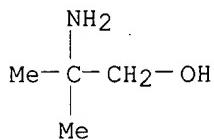
RN 109-86-4 HCAPLUS  
 CN Ethanol, 2-methoxy- (8CI, 9CI) (CA INDEX NAME)

HO—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>3</sub>

RN 111-42-2 HCAPLUS  
 CN Ethanol, 2,2'-iminobis- (9CI) (CA INDEX NAME)

HO—CH<sub>2</sub>—CH<sub>2</sub>—NH—CH<sub>2</sub>—CH<sub>2</sub>—OH

RN 124-68-5 HCAPLUS  
 CN 1-Propanol, 2-amino-2-methyl- (8CI, 9CI) (CA INDEX NAME)



RN 7447-40-7 HCAPLUS  
 CN Potassium chloride (KCl) (9CI) (CA INDEX NAME)

Cl—K

RN 7646-85-7 HCAPLUS  
 CN Zinc chloride (ZnCl<sub>2</sub>) (9CI) (CA INDEX NAME)

Cl—Zn—Cl

RN 7647-14-5 HCAPLUS  
 CN Sodium chloride (NaCl) (9CI) (CA INDEX NAME)

Cl—Na

RN 7786-30-3 HCAPLUS  
 CN Magnesium chloride (MgCl<sub>2</sub>) (9CI) (CA INDEX NAME)

Cl—Mg—Cl

IT 9001-08-5, Cholinesterase 9001-78-9  
 9031-11-2, .beta.-Galactosidase  
 RL: ANT (Analyte); ANST (Analytical study)  
 (single mol. detection of enzymes using enhanced chemiluminescence from  
 1,2-dioxetanes and water-sol., water-insol. or

partially-water sol. polymers)  
 RN 9001-08-5 HCPLUS  
 CN Esterase, choline (9CI) (CA INDEX NAME)

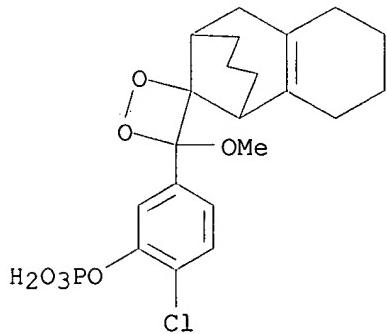
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 9001-78-9 HCPLUS  
 CN Phosphatase, alkaline (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 9031-11-2 HCPLUS  
 CN Galactosidase, .beta.- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 6788-84-7D, 1,2-Dioxetane, derivs. 260791-04-6  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (single mol. detection of enzymes using enhanced chemiluminescence from  
 1,2-dioxetanes and water-sol., water-insol. or  
 partially-water sol. polymers)  
 RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 260791-04-6 HCPLUS  
 CN Phenol, 2-chloro-5-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-  
 methoxyspiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl)-,  
 dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

IT 72852-29-0, Polyvinylbenzyltributylammonium chloride  
 77519-21-2 151346-37-1 151346-38-2  
 393869-24-4  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (single mol. detection of enzymes using enhanced chemiluminescence from  
 1,2-dioxetanes and water-sol., water-insol. or  
 partially-water sol. polymers)  
 RN 72852-29-0 HCPLUS  
 CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer  
 (9CI) (CA INDEX NAME)

CRN 62017-56-5  
 CMF C21 H36 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

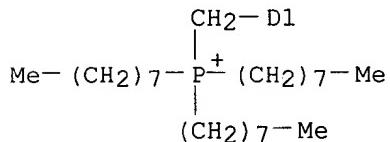
RN 77519-21-2 HCPLUS  
 CN Phosphonium, [(ethenylphenyl)methyl]trioctyl-, chloride, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 77519-20-1  
 CMF C33 H60 P . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>



● Cl<sup>-</sup>

RN 151346-37-1 HCPLUS  
 CN Phosphonium, tributyl[(ethenylphenyl)methyl]-, chloride, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 42808-25-3  
 CMF C21 H36 P . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>P-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

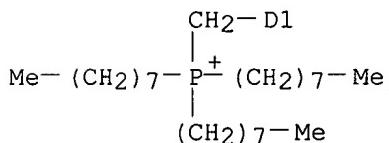
RN 151346-38-2 HCPLUS  
 CN Phosphonium, [(ethenylphenyl)methyl]trioctyl-, chloride, polymer with  
 tributyl[(ethenylphenyl)methyl]phosphonium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 77519-20-1  
 CMF C33 H60 P . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>



● Cl<sup>-</sup>

CM 2

CRN 42808-25-3  
 CMF C21 H36 P . Cl  
 CCI IDS



D1—CH≡CH<sub>2</sub>

(n-Bu)<sub>3</sub>P—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

RN 393869-24-4 HCAPLUS

CN Benzenemethanaminium, ar-ethenyl-N,N,N-trioctyl-, chloride, polymer with  
N,N,N-tributyl-ar-ethenylbenzenemethanaminium chloride (9CI) (CA INDEX  
NAME)

CM 1

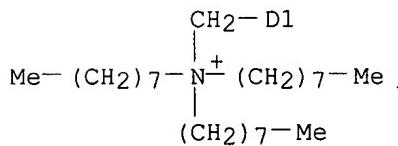
CRN 72852-27-8

CMF C33 H60 N . Cl

CCI IDS



D1—CH≡CH<sub>2</sub>



● Cl<sup>-</sup>

CM 2

CRN 62017-56-5

CMF C21 H36 N . Cl

CCI IDS



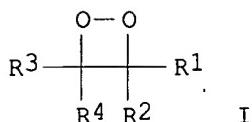
D1—CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

L82 ANSWER 2 OF 4 HCPLUS COPYRIGHT 2003 ACS  
 AN 2000:175815 HCPLUS  
 DN 132:207956  
 TI Preparation of chemiluminescent 1,2-dioxetane derivatives containing phosphoryloxyphenyl moiety  
 IN Giri, Brij P.  
 PA USA  
 SO PCT Int. Appl., 69 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C07F009-06  
 ICS C07D321-00; C07C043-166; C07C043-168; C07C043-178; C07F007-08;  
 C07K017-02; G01N033-533  
 CC 29-7 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 7, 28  
 FAN.CNT 1

|      | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | KIND       | DATE     | APPLICATION NO. | DATE     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-----------------|----------|
| PI   | WO 2000014092                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | A1         | 20000316 | WO 1999-US20590 | 19990908 |
|      | W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,<br>DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,<br>JP, KE, KG, KP, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO,<br>NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA,<br>UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,<br>ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,<br>CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |            |          |                 |          |
|      | CA 2342979                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | AA         | 20000316 | CA 1999-2342979 | 19990908 |
|      | AU 9959130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1         | 20000327 | AU 1999-59130   | 19990908 |
|      | EP 1112274                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1         | 20010704 | EP 1999-946804  | 19990908 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, SI, LT, LV, FI, RO                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |          |                 |          |
|      | US 6461876                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | B1         | 20021008 | US 2000-643063  | 20000821 |
| PRAI | US 1998-99693P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | P          | 19980908 |                 |          |
|      | WO 1999-US20590                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | W          | 19990908 |                 |          |
| OS   | MARPAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 132:207956 |          |                 |          |
| GI   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |          |                 |          |



AB The title compds. I [(a) R1, R2 are each, individually, an active site or when fused together form an active site, and R3 and R4 are each, individually, an active site or when fused together form an active site or (b) R1 has at least two hetero atoms with active site and R3 and R4 are inactive and R2 active], useful as chemiluminescent compds. in assays of enzymes (no data), are prep'd. These **1,2-dioxetanes** have electron donating or withdrawing groups at the four-membered peroxide ring, thus, the **1,2-dioxetane** ring hereof is affected by the added electronic charge.

ST oxetane phosphoryloxyphenyl moiety contg prepn chemiluminescent; chemiluminescent phosphoryloxyphenyl moiety contg **dioxetane** prepn; enzyme assay chemiluminescent phosphoryloxyphenyl moiety contg **dioxetane**

IT Enzymes, biological studies

RL: BSU (Biological study, unclassified); BIOL (Biological study) (detection; prepn. of chemiluminescent **dioxetane** derivs. for enzyme detection)

IT Luminescence, chemiluminescence

(prepn. of chemiluminescent **dioxetane** derivs. contg. phosphoryloxyphenyl moiety)

IT 260790-97-4P 260790-98-5P 260790-99-6P  
260791-00-2P 260791-01-3P 260791-02-4P  
260791-03-5P 260791-04-6P 260791-05-7P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(prepn. of chemiluminescent **dioxetane** derivs. contg. phosphoryloxyphenyl moiety)

IT 67-56-1, Methanol, reactions 75-89-8, 2,2,2-Trifluoroethanol 94-41-7, Benzalacetophenone 99-06-9, 3-Hydroxybenzoic acid, reactions 108-94-1, Cyclohexanone, reactions 122-99-6, 2-Phenoxyethanol 123-72-8, Butyraldehyde 700-58-3, Adamantan-2-one 10025-87-3, Phosphorus oxychloride 18162-48-6, tert-Butyldimethylsilyl chloride 30525-89-4, Paraformaldehyde 34113-69-4

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of chemiluminescent **dioxetane** derivs. contg. phosphoryloxyphenyl moiety)

IT 2544-00-5P 2682-98-6P 16643-41-7P 19438-10-9P 20098-14-0P  
20098-17-3P 21328-39-2P 24133-20-8P 69392-50-3P 99287-98-6P  
120687-94-7P 166272-81-7P 179633-60-4P 179633-61-5P 260791-06-8P  
260791-07-9P 260791-08-0P 260791-09-1P 260791-10-4P 260791-11-5P  
260791-12-6P, Tricyclo[3.3.1.13,7]dec-4-en-2-one 260791-13-7P  
260791-14-8P 260791-15-9P 260791-16-0P 260791-17-1P 260791-18-2P  
260791-19-3P 260791-20-6P 260791-21-7P 260791-22-8P 260791-23-9P  
260791-24-0P 260791-25-1P 260791-26-2P 260791-27-3P 260791-28-4P  
260791-29-5P 260791-30-8P 260791-31-9P 260791-32-0P 260791-33-1P  
260791-34-2P 260791-35-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. of chemiluminescent **dioxetane** derivs. contg. phosphoryloxyphenyl moiety)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Akhavan-Tafti; US 5721370 A 1998 HCPLUS
- (2) Bronstein; US 5112960 A 1992 HCPLUS

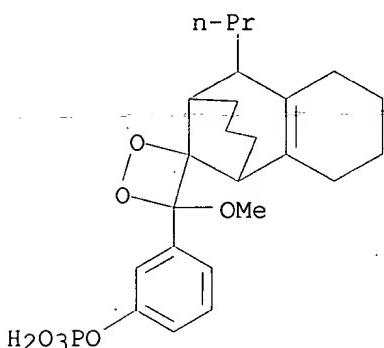
- (3) Bronstein; US 5679803 A 1997 HCPLUS  
 (4) Brooks; US 5225584 A 1993 HCPLUS  
 (5) Schaap; US 5004565 A 1991 HCPLUS  
 (6) Schaap; US 5578253 A 1996 HCPLUS

IT 260790-97-4P 260790-98-5P 260790-99-6P  
 260791-00-2P 260791-01-3P 260791-02-4P  
 260791-03-5P 260791-04-6P 260791-05-7P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (prepn. of chémiluminescent **dioxetane** derivs. contg.  
 phosphoryloxyphenyl moiety)

RN 260790-97-4 HCPLUS

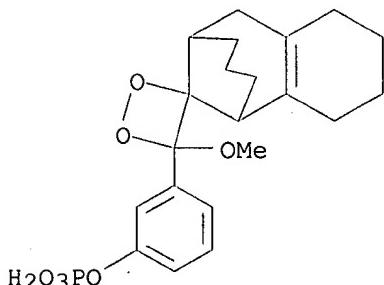
CN Phenol, 3-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxy-10'-propylspiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 260790-98-5 HCPLUS

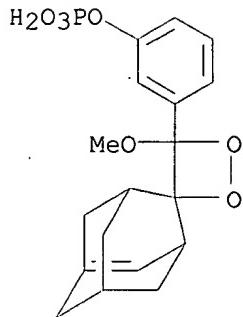
CN Phenol, 3-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxyspiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



2 Na

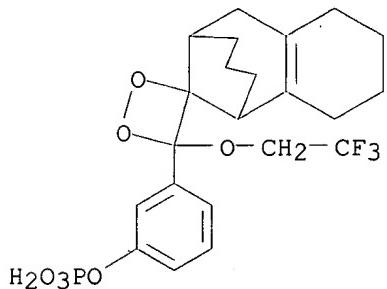
RN 260790-99-6 HCPLUS

CN Phenol, 3-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]dec[4]en]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



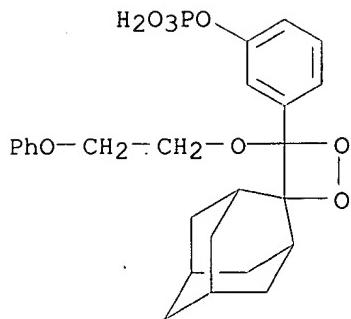
●2 Na

RN 260791-00-2 HCAPLUS  
 CN Phenol, 3-[1',2',3',4',5',6',7',8',9',10'-decahydro-4-(2,2,2-trifluoroethoxy)spiro[1,2-dioxetane-3,11'-(5,9)methanobenzocycloocten]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

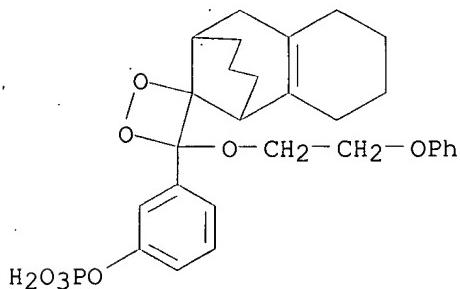
RN 260791-01-3 HCAPLUS  
 CN Phenol, 3-[4-(2-phenoxyethoxy)spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decen]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 260791-02-4 HCAPLUS

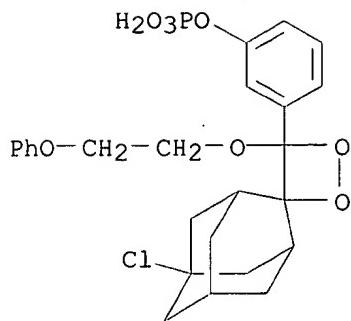
CN Phenol, 3-[1',2',3',4',5',6',7',8',9',10'-decahydro-4-(2-phenoxyethoxy)spiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

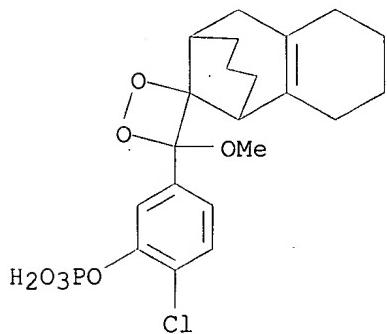
RN 260791-03-5 HCAPLUS

CN Phenol, 3-[5'-chloro-4-(2-phenoxyethoxy)spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decen]-4-yl]-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



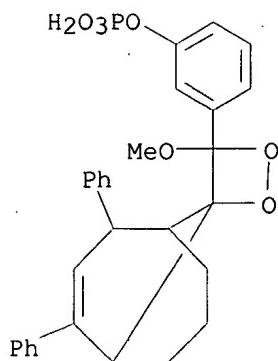
●2 Na

RN 260791-04-6 HCAPLUS  
 CN Phenol, 2-chloro-5-(1',2',3',4',5',6',7',8',9',10'-decahydro-4-methoxyspiro[1,2-dioxetane-3,11'-[5,9]methanobenzocycloocten]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 260791-05-7 HCAPLUS  
 CN Phenol, 3-(4'-methoxy-2,4-diphenylspiro[bicyclo[3.3.1]non-2-ene-9,3'-[1,2]dioxetan]-4'-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)

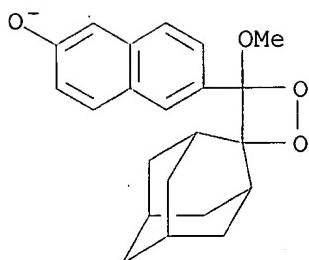


●2 Na

- L82 ANSWER 3 OF 4 HCPLUS COPYRIGHT 2003 ACS  
 AN 1988:423007 HCPLUS  
 DN 109:23007  
 TI Chemical and enzymic triggering of 1,2-dioxetanes. 2.  
 Fluoride-induced chemiluminescence from tert-butyldimethylsilyloxy-substituted dioxetanes  
 AU Schaap, A. P.; Chen, T. S.; Handley, R. S.; DeSilva, R.; Giri, B. P.  
 CS Dep. Chem., Wayne State Univ., Detroit, MI, USA  
 SO Report (1987), TR-2-ONR, TR-3; Order No. AD-A178500/5/GAR, 11 pp. Avail.: NTIS  
 From: Gov. Rep. Announce. Index (U. S.) 1987, 87(13), Abstr. No. 727,001  
 DT Report  
 LA English  
 CC 29-6 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 22  
 AB Thermally stable 1,2-dioxetanes bearing tert-butyldimethylsilyloxyaryl groups were prep'd. Reaction of these dioxetanes with fluoride ion at ambient temp. in Me cyanate and DMSO generates chemiluminescence with efficiencies up to 25%.  
 ST dioxetane butyldimethylsilyloxyaryl chemiluminescence fluoride induced  
 IT Luminescence, chemi-  
 (of butyldimethylsilyloxyaryl dioxetanes, fluoride-induced)  
 IT 6788-84-7D, 1,2-Dioxetane, butyldimethylsilyloxyaryl-substituted  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (fluoride-induced chemiluminescence from)  
 IT 16984-48-8, Fluoride ion, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with butyldimethylsilyloxyaryl dioxetanes, chemiluminescence from)  
 IT 6788-84-7D, 1,2-Dioxetane, butyldimethylsilyloxyaryl-substituted  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (fluoride-induced chemiluminescence from)  
 RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI). (CA INDEX NAME)

O—O

L82 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS  
AN 1987:529703 HCAPLUS  
DN 107:129703  
TI Chemical and enzymatic triggering of 1,2-dioxetanes. 1: aryl esterase-catalyzed chemiluminescence from a naphthyl acetate-substituted dioxetane  
AU Schaap, A. Paul; Handley, Richard S.; Giri, Brij P.  
CS Dep. Chem., Wayne State Univ., Detroit, MI, 48202, USA  
SO Tetrahedron Letters (1987), 28(9), 935-8  
CODEN: TELEAY; ISSN: 0040-4039  
DT Journal  
LA English  
CC 7-3 (Enzymes)  
AB A thermally stable 1,2-dioxetane bearing a naphthyl acetate group was enzymically cleaved in aq. buffer to generate chemiluminescence at ambient temp.  
ST aryl esterase dioxetane hydrolysis chemiluminescence  
IT Luminescence, chemi-  
      (aryl esterase- and base-catalyzed, from dioxetanes)  
IT 9032-73-9, Aryl esterase  
      RL: RCT (Reactant); RACT (Reactant or reagent)  
      (dioxetane hydrolysis by, chemiluminescence from)  
IT 110347-75-6 110347-76-7  
      RL: FORM (Formation, nonpreparative)  
      (formation of, in dioxetane enzymic hydrolysis by aryl esterase)  
IT 110347-70-1 110347-71-2 110371-06-7  
      RL: PROC (Process)  
      (photooxygenation of, in presence of polymer-bound Rose Bengal)  
IT 110347-73-4P 110347-74-5P  
      RL: SPN (Synthetic preparation); PREP (Preparation)  
      (prepn. and aryl esterase- or base-catalyzed chemiluminescence from)  
IT 110347-72-3P  
      RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
      (prepn. and thermal decompr. of)  
IT 110347-75-6  
      RL: FORM (Formation, nonpreparative)  
      (formation of, in dioxetane enzymic hydrolysis by aryl esterase)  
RN 110347-75-6 HCAPLUS  
CN 2-Naphthalenol, 6-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, ion(1-) (9CI) (CA INDEX NAME)

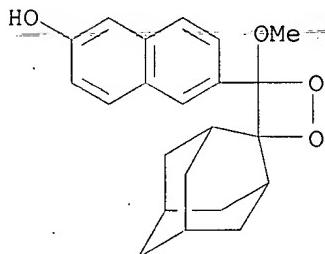


IT 110347-73-4P 110347-74-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and aryl esterase- or base-catalyzed chemiluminescence from)

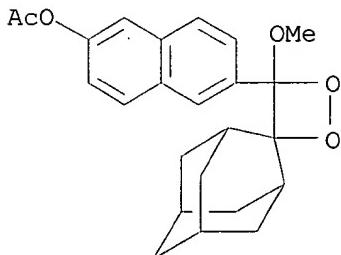
RN 110347-73-4 HCPLUS

CN 2-Naphthalenol, 6-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane]-4-yl)- (9CI) (CA INDEX NAME)



RN 110347-74-5 HCPLUS

CN 2-Naphthalenol, 6-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane]-4-yl)-, acetate (9CI) (CA INDEX NAME)

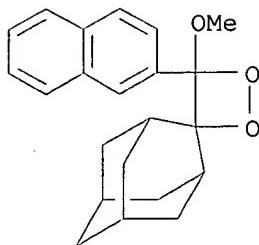


IT 110347-72-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(prepn. and thermal decompn. of)

RN 110347-72-3 HCPLUS

CN Spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane], 4-methoxy-4-(2-naphthalenyl)- (9CI) (CA INDEX NAME)



=> d 181 all hitstr tot

L81 ANSWER 1 OF 7 HCPLUS COPYRIGHT 2003 ACS

AN 2002:716965 HCPLUS

DN 137:244282

TI Quant-screen chemiluminescent assays for cells

IN Olesen, Corinne E. M.; Yan, Yu-xin; Bronstein, Irena Y.

PA USA

SO U.S. Pat. Appl. Publ., 29 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM G01N021-76

NCL 436172000

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 7, 13

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------|------|----------|-----------------|----------|
| PI   | US 2002132364  | A1   | 20020919 | US 2001-756209  | 20010109 |
| PRAI | US 2001-756209 |      |          |                 |          |

OS MARPAT 137:244282

AB Chemiluminescent endogenous enzyme assays are disclosed which provide for the rapid, simple, and sensitive quantitation of cells directly in microwell cultures by the measurement of endogenous enzyme activity. These endogenous enzyme assays provide homogeneous chemiluminescent formats for measuring cell proliferation, growth inhibition, cell adhesion, cell migration, and cell no. quantitation and normalization. Methods and kits employing such assays are also provided. A Quant-Screen mammalian reaction buffer contg. 150 mM sodium phosphate, pH 5.5, 30 mM EDTA, 0.3 % Triton X-1000, 2 % sodium dodecylbenzenesulfonate, 0.6 mM Glucon, 1 M diethanolamine, pH 9.5, as accelerator, and 30 % Sapphire-II was used in growth stimulation and growth inhibition assays with 3T3 cells.

ST enzyme quant screen chemiluminescent assay cell; mammalian cell quant screen chemiluminescent assay

IT Animal cell line

(3T3; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT Animal cell line

(K562; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT Blood serum

(calf; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT Yeast

(cells; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT Cytotoxicity

- (detection of; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Enzymes, analysis  
RL: ANT (Analyte); ANST (Analytical study)  
(endogenous; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Culture media  
(enrichment; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Animal cell  
(mammalian; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Cell division  
(measurement of inhibition of; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Adhesion, biological  
Cell migration  
Cell proliferation  
(measurement of; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Onium compounds  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(polymeric quaternary salts, as enhancers; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Animal tissue culture  
Buffers  
Cell  
**Chemiluminescence spectroscopy**  
Culture media  
Cytolysis  
**Fluorescent substances**  
High throughput screening  
Human  
Luminescence spectroscopy  
**Luminescent substances**  
Microtiter plates  
*Saccharomyces cerevisiae*  
*Schizosaccharomyces pombe*  
Test kits  
(quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT Albumins, uses  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(serum, as enhancers; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT 9017-80-5, Polyvinylbenzyltrimethyl ammonium chloride  
72852-29-0, Polyvinylbenzyltributylammonium chloride  
135781-07-6 151346-37-1, Polyvinylbenzyltributylphosphonium chloride 459811-21-3 460090-23-7  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(as enhancer; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT 50-76-0, Actinomycin D  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(in yeast growth inhibition studies; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT 60-00-4, EDTA, uses 111-42-2, Diethanolamine, uses 7632-05-5,  
Sodium Phosphate 9002-93-1, Triton X-100  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(mammalian cell reaction buffer contg.; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)
- IT 9001-92-7, Protease  
RL: ANT (Analyte); ANST (Analytical study)

(protease; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 9001-34-7, Galactosidase 9001-45-0, Glucuronidase 9001-77-8, Acid phosphatase 9001-78-9 9013-79-0, Esterase 9033-06-1, Glucosidase  
 RL: ANT (Analyte); ANST (Analytical study)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 550-82-3, Alamar Blue 6788-84-7D, 1,2-Dioxetane,  
 compds. 124951-96-8 142849-53-4 160081-62-9  
 189942-84-5, ADP-Star 201037-11-8, Glucon  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 143-74-8, Phenol red  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 62996-74-1, Staurosporine  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 56-81-5, Glycerol, uses 124-68-5, 2-Amino-2-methyl-1-propanol 7786-30-3, Magnesium chloride (MgCl<sub>2</sub>), uses 11024-24-1, Digitonin 25155-30-0, Sodium dodecylbenzenesulfonate  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (yeast reaction buffer contg.; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

IT 9017-80-5, Polyvinylbenzyltrimethyl ammonium chloride  
 72852-29-0, Polyvinylbenzyltributylammonium chloride  
 135781-07-6 151346-37-1, Polyvinylbenzyltributylphosphonium chloride  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (as enhancer; quant-screen chemiluminescent assays for cells by measuring endogenous enzymes)

RN 9017-80-5 HCPLUS

CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3  
 CMF C12 H18 N . Cl  
 CCI IDS

D1-CH=CH<sub>2</sub>Me<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1Cl<sup>-</sup>

RN 72852-29-0 HCAPLUS  
 CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer  
 (9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5  
 CMF C21 H36 N . Cl  
 CCI IDS



D1—CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub>N<sup>+</sup>—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

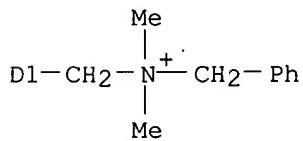
RN 135781-07-6 HCAPLUS  
 CN Benzenemethanaminium, ar-ethenyl-N,N-dimethyl-N-(phenylmethyl)-, chloride,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62017-62-3  
 CMF C18 H22 N . Cl  
 CCI IDS



D1—CH=CH<sub>2</sub>



Cl<sup>-</sup>

RN 151346-37-1 HCAPLUS

CN Phosphonium, tributyl[ (ethenylphenyl)methyl]-, chloride, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 42808-25-3  
 CMF C21 H36 P . Cl  
 CCI IDS



D1—CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>P—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

IT 111-42-2, Diethanolamine, uses  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (mammalian cell reaction buffer contg.; quant-screen chemiluminescent  
 assays for cells by measuring endogenous enzymes)  
 RN 111-42-2 HCPLUS  
 CN Ethanol, 2,2'-iminobis- (9CI) (CA INDEX NAME)

HO—CH<sub>2</sub>—CH<sub>2</sub>—NH—CH<sub>2</sub>—CH<sub>2</sub>—OH

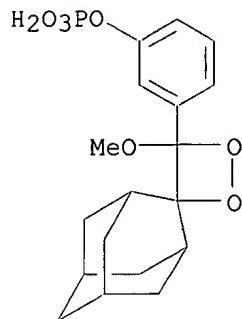
IT 9001-78-9  
 RL: ANT (Analyte); ANST (Analytical study)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous  
 enzymes)  
 RN 9001-78-9 HCPLUS  
 CN Phosphatase, alkaline (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 6788-84-7D, 1,2-Dioxetane, compds. 124951-96-8  
 142849-53-4 160081-62-9 189942-84-5, ADP-Star  
 201037-11-8, Glucon  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (quant-screen chemiluminescent assays for cells by measuring endogenous  
 enzymes)  
 RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 124951-96-8 HCPLUS

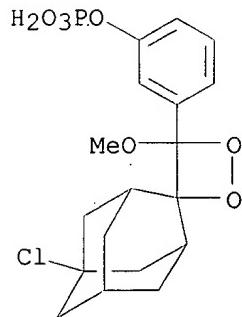
CN Phenol, 3-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 142849-53-4 HCAPLUS

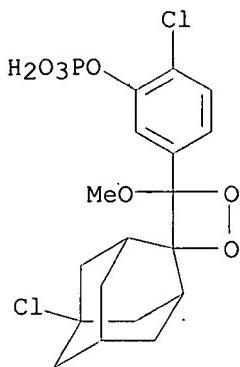
CN Phenol, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 160081-62-9 HCAPLUS

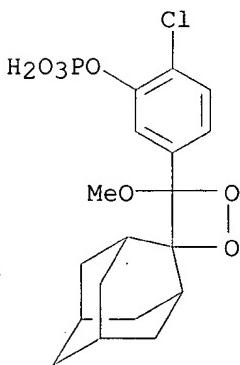
CN Phenol, 2-chloro-5-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

RN 189942-84-5 HCPLUS

CN Phenol, 2-chloro-5-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decyl]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)

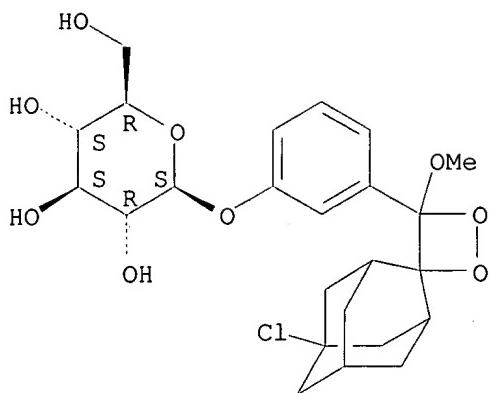


●2 Na

RN 201037-11-8 HCPLUS

CN .beta.-D-Glucopyranoside, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decyl]-4-yl)phenyl (9CI) (CA INDEX NAME)

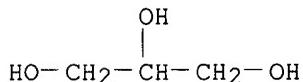
Absolute stereochemistry.



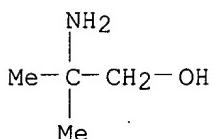
IT 56-81-5, Glycerol, uses 124-68-5, 2-Amino-2-methyl-1-propanol 7786-30-3, Magnesium chloride (MgCl<sub>2</sub>), uses  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (yeast reaction buffer contg.; quant-screen chemiluminescent assays for  
 cells by measuring endogenous enzymes)

RN 56-81-5 HCAPLUS

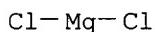
CN 1,2,3-Propanetriol (9CI) (CA INDEX NAME)



RN 124-68-5 HCAPLUS  
 CN 1-Propanol, 2-amino-2-methyl- (8CI, 9CI) (CA INDEX NAME)



RN 7786-30-3 HCAPLUS  
 CN Magnesium chloride (MgCl<sub>2</sub>) (9CI) (CA INDEX NAME)



L81 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1997:505750 HCAPLUS  
 DN 127:119320  
 TI Multiple reporter gene assay  
 IN Bronstein, Irena Y.; Fortin, John J.; Martin, Chris S.; Voyta, John C.  
 PA Tropix, Inc., USA  
 SO PCT Int. Appl., 41 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 CC 9-5 (Biochemical Methods)  
 Section cross-reference(s): 3, 7

## FAN.CNT 1

|      | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | KIND                                                                                                                                                                                                     | DATE     | APPLICATION NO. | DATE     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----------|
| PI   | WO 9724460                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A1                                                                                                                                                                                                       | 19970710 | WO 1996-US20650 | 19961223 |
|      | W: AU, CA, JP<br>RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE<br>CA 2241760                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | AA                                                                                                                                                                                                       | 19970710 | CA 1996-2241760 | 19961223 |
|      | AU 9713502                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A1                                                                                                                                                                                                       | 19970728 | AU 1997-13502   | 19961223 |
|      | AU 732044                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | B2                                                                                                                                                                                                       | 20010412 |                 |          |
|      | EP 874913                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | A1                                                                                                                                                                                                       | 19981104 | EP 1996-945044  | 19961223 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, FI<br>JP 2000513563                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T2                                                                                                                                                                                                       | 20001017 | JP 1997-524534  | 19961223 |
| PRAI | US 1995-579787                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A                                                                                                                                                                                                        | 19951228 |                 |          |
|      | WO 1996-US20650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | W                                                                                                                                                                                                        | 19961223 |                 |          |
| OS   | MARPAT 127:119320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                          |          |                 |          |
| AB   | A nonisotopic method of measuring the activity of at least two reporter gene products in an aliquot of a sample ext. is disclosed. The method is esp. useful for measuring transcriptional activity of cells transfected with >1 reporter gene. The activities of a first and second reporter enzyme (selected from luciferase, <b>.beta.-galactosidase</b> , <b>.beta.-glucuronidase</b> , <b>alk. phosphatase</b> , or carboxyl esterase) are quantified by measuring the light signal produced by degrdn. of a first substrate by the first reporter enzyme and the light signal produced by the degrdn. of a second substrate by a second reporter enzyme. Both quantifications are sequentially performed on the same aliquot of sample ext. |                                                                                                                                                                                                          |          |                 |          |
| ST   | cell multiple reporter gene product detn; enzyme reporter multiple detn transcription; <b>dioxetane</b> substrate reporter enzyme chemiluminescence detn; transfection cell multiple reporter gene assay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                          |          |                 |          |
| IT   | Gene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (expression; multiple reporter gene assay)                                                                                                                                                               |          |                 |          |
| IT   | Animal cell                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (mammalian; multiple reporter gene assay)                                                                                                                                                                |          |                 |          |
| IT   | Cell                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Chemiluminescence spectroscopy</b><br>Test kits<br>Transcription, genetic<br>Transformation, genetic<br>(multiple reporter gene assay)                                                                |          |                 |          |
| IT   | <b>Enzymes</b> , analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                          |          |                 |          |
|      | Reporter gene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RL: ANT (Analyte); BAC (Biological activity or effector, except adverse);<br>BSU (Biological study, unclassified); ANST (Analytical study); BIOL<br>(Biological study)<br>(multiple reporter gene assay) |          |                 |          |
| IT   | Onium compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)<br>(quaternary, <b>polymers</b> ; multiple reporter gene assay)                                                                   |          |                 |          |
| IT   | Albumins, uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)<br>(serum; multiple reporter gene assay)                                                                                          |          |                 |          |
| IT   | <b>Polymers</b> , uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)<br>(water-sol.; multiple reporter gene assay)                                                                                     |          |                 |          |
| IT   | 9001-45-0, <b>.beta.-Glucuronidase 9001-78-9</b> 9014-00-0,<br>Luciferase 9016-18-6, Carboxyl esterase 9027-41-2, Hydrolase<br><b>9031-11-2, .beta.-Galactosidase</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                          |          |                 |          |
|      | RL: ANT (Analyte); BAC (Biological activity or effector, except adverse);<br>BSU (Biological study, unclassified); ANST (Analytical study); BIOL<br>(Biological study)<br>(multiple reporter gene assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                          |          |                 |          |
| IT   | 9017-80-5, Polyvinylbenzyltrimethylammonium chloride                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 62017-62-3                                                                                                                                                                                               |          |                 |          |

151346-37-1, Polyvinylbenzyltributylphosphonium chloride  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(multiple reporter gene assay)

IT 2591-17-5, Luciferin 6788-84-7D, Dioxetane, enzyme  
substrates contg. 142849-71-6, Galacton 181285-38-1,  
Galacton-Plus 201037-71-0  
RL: ARG (Analytical reagent use); BPR (Biological process); BSU  
(Biological study, unclassified); ANST (Analytical study); BIOL  
(Biological study); PROC (Process); USES (Uses)  
(multiple reporter gene assay)

IT 111-42-2, Diethanolamine, uses  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(soln. contg.; multiple reporter gene assay)

IT 72852-29-0, Sapphire II  
RL: ARG (Analytical reagent use); BPR (Biological process); BSU  
(Biological study, unclassified); ANST (Analytical study); BIOL  
(Biological study); PROC (Process); USES (Uses)  
(soln. contg.; multiple reporter gene assay)

IT 9001-78-9 9031-11-2, .beta.-  
Galactosidase  
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse);  
BSU (Biological study, unclassified); ANST (Analytical study); BIOL  
(Biological study)  
(multiple reporter gene assay)

RN 9001-78-9 HCPLUS

CN Phosphatase, alkaline (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 9031-11-2 HCPLUS

CN Galactosidase, .beta.- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 9017-80-5, Polyvinylbenzyltrimethylammonium chloride  
151346-37-1, Polyvinylbenzyltributylphosphonium chloride  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(multiple reporter gene assay)

RN 9017-80-5 HCPLUS

CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3

CMF C12 H18 N . Cl

CCI IDS



D1—CH=CH<sub>2</sub>

Me<sub>3</sub><sup>+</sup>N—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

RN 151346-37-1 HCPLUS

CN Phosphonium, tributyl[(ethenylphenyl)methyl]-, chloride, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 42808-25-3

CMF C21 H36 P . Cl

CCI IDS



D1—CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>P—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

IT 6788-84-7D, Dioxetane, enzyme substrates contg.

142849-71-6, Galacton 181285-38-1, Galacton-Plus  
201037-71-0

RL: ARG (Analytical reagent use); BPR (Biological process); BSU  
(Biological study, unclassified); ANST (Analytical study); BIOL  
(Biological study); PROC (Process); USES (Uses)  
(multiple reporter gene assay)

RN 6788-84-7 HCPLUS

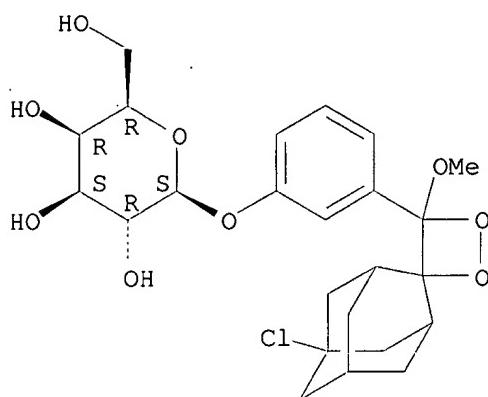
CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 142849-71-6 HCAPLUS

CN .beta.-D-Galactopyranoside, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)phenyl (9CI) (CA INDEX NAME)

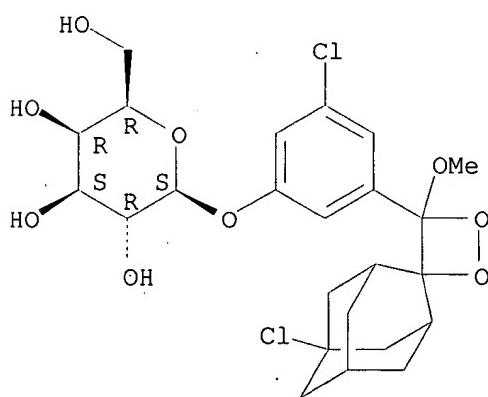
Absolute stereochemistry.



RN 181285-38-1 HCAPLUS

CN .beta.-D-Galactopyranoside, 3-chloro-5-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)phenyl (9CI) (CA INDEX NAME)

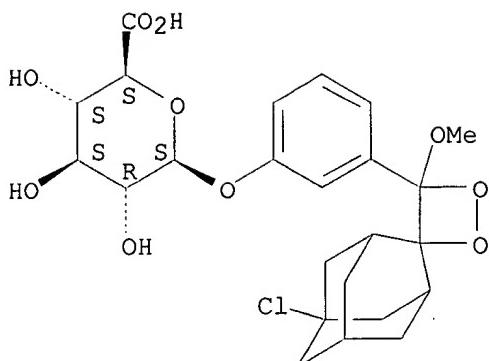
Absolute stereochemistry.



RN 201037-71-0 HCAPLUS

CN .beta.-D-Glucopyranosiduronic acid, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)phenyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 111-42-2, Diethanolamine, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(soln. contg.; multiple reporter gene assay)

RN 111-42-2 HCPLUS

CN Ethanol, 2,2'-iminobis- (9CI) (CA INDEX NAME)



IT 72852-29-0, Sapphire II

RL: ARG (Analytical reagent use); BPR (Biological process); BSU  
(Biological study, unclassified); ANST (Analytical study); BIOL  
(Biological study); PROC (Process); USES (Uses)  
(soln. contg.; multiple reporter gene assay)

RN 72852-29-0 HCPLUS

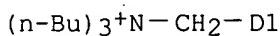
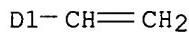
CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5

CMF C21 H36 N . Cl

CCI IDS



$\text{Cl}^-$

DN 126:206907  
 TI Di-substituted 1,2-dioxetane compounds having increased water solubility and assay compositions  
 IN Akhavan-Tafti, Hashem; De Silva, Renuka; Schaap, Paul A.  
 PA Board of Governors of Wayne State University, USA; Lumigen, Inc.  
 SO Eur. Pat. Appl., 25 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C07F009-655  
 ICS G01N033-533; C07D321-00; C07F009-12; C07C069-708  
 CC 79-2 (Inorganic Analytical Chemistry)  
 Section cross-reference(s): 9, 28, 29

## FAN.CNT 3

|      | PATENT NO.                                                                | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI   | EP 757052                                                                 | A1   | 19970205 | EP 1996-112386  | 19960731 |
|      | EP 757052                                                                 | B1   | 20030219 |                 |          |
|      | R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE |      |          |                 |          |
|      | US 5777135                                                                | A    | 19980707 | US 1995-509305  | 19950731 |
|      | IL 118934                                                                 | A1   | 20000131 | IL 1996-118934  | 19960724 |
|      | CA 2182325                                                                | AA   | 19970201 | CA 1996-2182325 | 19960730 |
|      | AU 9660818                                                                | A1   | 19970206 | AU 1996-60818   | 19960730 |
|      | AU 703632                                                                 | B2   | 19990325 |                 |          |
|      | JP 09249659                                                               | A2   | 19970922 | JP 1996-216922  | 19960731 |
|      | JP 3290592                                                                | B2   | 20020610 |                 |          |
|      | AT 232876                                                                 | E    | 20030315 | AT 1996-112386  | 19960731 |
|      | US 5804103                                                                | A    | 19980908 | US 1997-842728  | 19970416 |
|      | AU 9889605                                                                | A1   | 19990211 | AU 1998-89605   | 19981029 |
|      | AU 719065                                                                 | B2   | 20000504 |                 |          |
| PRAI | US 1995-509305                                                            | A    | 19950731 |                 |          |
|      | AU 1996-60818                                                             | A3   | 19960730 |                 |          |

OS MARPAT 126:206907

AB Stable, enzymically triggered chemiluminescent, 1,2-dioxetanes with improved water solv. are provided. Dioxetanes further substituted with two or more water-solubilizing groups disposed on the dioxetane structure provide superior performance by eliminating the problem of reagent carryover when used in assays performed on capsule chem. anal. systems. Compns. comprising a dioxetane with two or more water-solubilizing groups, a nonpolymeric cationic surfactant enhancer and optionally a fluorescer, for providing enhanced chemiluminescence are also provided.

ST water soluble chemiluminescent dioxetane reagent

IT Luminescence, chemiluminescence

(prepn. of water sol. chemiluminescent di-substituted dioxetane reagents)

IT 151346-37-1, Poly(vinylbenzyltributylphosphonium chloride) 163342-81-2, 1-Trioctylphosphoniummethyl-4-tributylphosphoniummethylbenzene dichloride

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (enhancer; prepn. of water sol. chemiluminescent di-substituted dioxetane reagents)

IT 124-68-5, 2-Amino-2-methyl-1-propanol 2321-07-5, Fluorescein 6358-69-6, Pyranine 7439-95-4, Magnesium, uses 9002-93-1, Triton X-100 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (prepn. of water sol. chemiluminescent di-substituted dioxetane reagents)

IT 187655-25-0P, [4-((3,3-Biscarboethoxy)propoxy)-4-(3-phosphoryloxyphenyl)]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane], tetrasodium salt 187655-27-2P, [4-(3-Carboxypropoxy)-4-(3-phosphoryloxyphenyl)]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane]

RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (prepn. of water sol. chemiluminescent di-substituted **dioxetane** reagents)

IT 67-56-1, Methanol, reactions 99-06-9, 3-Hydroxybenzoic acid, reactions 105-53-3, Diethyl malonate 107-07-3, 2-Chloroethanol, reactions 109-78-4, 2-Cyanoethanol 110-86-1, Pyridine, reactions 121-44-8, reactions 141-52-6, Sodium ethoxide 143-33-9, Sodium cyanide (NaCN) 429-41-4, Tetrabutylammonium fluoride 538-75-0, DCC 627-30-5, 3-Chloro-1-propanol 700-58-3, Adamantanone 1122-58-3, DMAP 1310-73-2, Sodium hydroxide (NaOH), reactions 7681-82-5, Sodium iodide (NaI), reactions 7705-07-9, Titanium chloride (TiCl<sub>3</sub>), reactions 7782-44-7, Oxygen, reactions 10025-87-3, Phosphorus chloride oxide (PCl<sub>3</sub>O) 11121-48-5D, Rose Bengal, polymer bound 16853-85-3 18162-48-6, tert-Butyldimethylsilyl chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of water sol. chemiluminescent di-substituted **dioxetane** reagents)

IT 133258-97-6P, [(2-Chloroethoxy)-(3-tert-butyldimethylsilyloxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 133259-04-8P, 2-Chloroethyl-3-hydroxybenzoate 133259-05-9P, 2-Chloroethyl-3-tert-butyldimethylsilyloxybenzoate 133259-06-0P, [(2-Chloroethoxy)-(3-hydroxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 133259-07-1P, [(3-Hydroxyphenyl)-(2-iodoethoxy)methylene]tricyclo[3.3.1.13,7]decane 142149-09-5P, 3-Chloropropyl-3-hydroxybenzoate 142149-11-9P, [3-Chloropropyl-3-(tert-butyldimethylsilyloxyphenyl)-(3-chloropropoxy)methylene]tricyclo[3.3.1.13,7]decane 142149-12-0P 142149-13-1P, [(3-Cyanopropoxy)-(3-hydroxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 142149-14-2P, [(3-Carboxypropoxy)-(3-hydroxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 187655-28-3P, [(3,3-Biscarboethoxy)propoxy)-(3-hydroxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 187655-29-4P, [(3,3-Biscarboethoxy)propoxy)-(3-(bis-(2-cyanoethyl)phosphoryloxy)phenyl)methylene]tricyclo[3.3.1.13,7]decane 187655-30-7P, [(3,3-Biscarboethoxy)propoxy)-(3-phosphoryloxyphenyl)methylene]tricyclo[3.3.1.13,7]decane, tetrasodium salt 187655-31-8P, 3-Chloropropyl-3-(tert-butyldimethylsilyloxy)benzoate 187655-32-9P, [(3-Carbomethoxypropoxy)-(3-hydroxyphenyl)methylene]tricyclo[3.3.1.13,7]decane 187655-34-1P, [(3-Carboxypropoxy)-(3-phosphoryloxyphenyl)methylene]tricyclo[3.3.1.13,7]decane, trisodium salt 187879-94-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of water sol. chemiluminescent di-substituted **dioxetane** reagents)

IT 151346-37-1, Poly(vinylbenzyltributylphosphonium chloride)  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (enhancer; prepn. of water sol. chemiluminescent di-substituted **dioxetane** reagents)

RN 151346-37-1 HCPLUS

CN Phosphonium, tributyl[(ethenylphenyl)methyl]-, chloride, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 42808-25-3  
 CMF C21 H36 P . Cl  
 CCI IDS

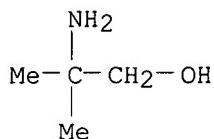


D1—CH=CH<sub>2</sub>

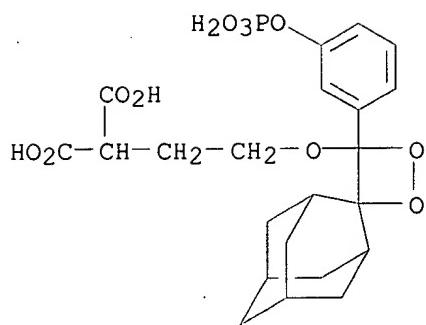
(n-Bu)<sub>3</sub><sup>+</sup>P—CH<sub>2</sub>—D1

● Cl<sup>-</sup>

IT 124-68-5, 2-Amino-2-methyl-1-propanol  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (prepn. of water sol. chemiluminescent di-substituted dioxetane  
 reagents)  
 RN 124-68-5 HCAPLUS  
 CN 1-Propanol, 2-amino-2-methyl- (8CI, 9CI) (CA INDEX NAME)



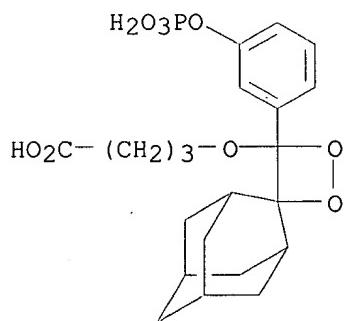
IT 187655-25-0P, [4-((3,3-Biscarboethoxy)propoxy)-4-(3-phosphoryloxyphenyl)]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane], tetrasodium salt 187655-27-2P,  
 [4-(3-Carboxypropoxy)-4-(3-phosphoryloxyphenyl)]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane]  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (prepn. of water sol. chemiluminescent di-substituted dioxetane  
 reagents)  
 RN 187655-25-0 HCAPLUS  
 CN Propanedioic acid, [2-[[4-[3-(phosphonoxy)phenyl]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decane]-4-yl]oxy]ethyl]-, tetrasodium salt (9CI) (CA INDEX NAME)



## ● 4 Na

RN 187655-27-2 HCPLUS

CN Butanoic acid, 4-[[4-[3-(phosphonooxy)phenyl]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decyl]oxy]-, trisodium salt (9CI) (CA INDEX NAME)



## ● 3 Na

IT 67-56-1, Methanol, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of water sol. chemiluminescent di-substituted dioxetane reagents)

RN 67-56-1 HCPLUS

CN Methanol (8CI, 9CI) (CA INDEX NAME)

H3C-OH

L81 ANSWER 4 OF 7 HCPLUS COPYRIGHT 2003 ACS

AN 1997:204102 HCPLUS

DN 126:183507

TI Improved capsule chemistry analytical methods employing dioxetane chemiluminescence

IN Adolfsen, Robert H.; Akhavan-Tafti, Hashem; De Silva, Renuka; Schaap, Paul A.

PA Board of Governors of Wayne State University, USA; Bayer A.-G.

SO Eur. Pat. Appl., 22 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G01N033-52

ICS G01N033-58

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 15, 28

FAN.CNT 1

|      | PATENT NO.                                                                   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI   | EP 757248                                                                    | A2   | 19970205 | EP 1996-112385  | 19960731 |
|      | EP 757248                                                                    | A3   | 19970723 |                 |          |
|      | EP 757248                                                                    | B1   | 20010523 |                 |          |
|      | R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL,<br>PT, SE |      |          |                 |          |
|      | US 5631167                                                                   | A    | 19970520 | US 1995-509692  | 19950731 |
|      | IL 118935                                                                    | A1   | 20001121 | IL 1996-118935  | 19960724 |
|      | CA 2182326                                                                   | AA   | 19970201 | CA 1996-2182326 | 19960730 |
|      | AU 9660817                                                                   | A1   | 19970206 | AU 1996-60817   | 19960730 |
|      | AU 719699                                                                    | B2   | 20000518 |                 |          |
|      | JP 09184810                                                                  | A2   | 19970715 | JP 1996-216921  | 19960731 |
|      | ES 2159333                                                                   | T3   | 20011001 | ES 1996-112385  | 19960731 |
| PRAI | US 1995-509692                                                               | A    | 19950731 |                 |          |

OS MARPAT 126:183507

AB Improved assay methods utilizing stable, enzymically triggered chemiluminescent **1,2-dioxetanes** with improved water solv. are provided. Assays are performed by a capsule chem. anal. assay method wherein fluid capsules comprising discrete aq. segments contg. either a chemiluminescent **dioxetane** reagent or an activating agent sepd. by an oil-based isolating fluid are flowed through a conduit and subsequently reacted to produce light. The improvement comprises using a **dioxetane** substituted with two or more water-solubilizing groups disposed on the **dioxetane** structure to provide the chemiluminescence. Compns. comprising such a **dioxetane**, a non-polymeric surfactant enhancer, and optionally a fluorescer, provide enhanced chemiluminescence and eliminate the problem of reagent carryover when used in assays performed on capsule chem. anal. systems.

ST capsule chem analysis chemiluminescence **dioxetane** prepn

IT Antibodies

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(alk. phosphatase conjugates; improved capsule  
chem. anal. methods using **dioxetane** chemiluminescence)

IT Surfactants

(cationic; improved capsule chem. anal. methods using **dioxetane**  
chemiluminescence)

IT Capsules

Chemiluminescence spectroscopy

Fluorescent substances

Immunoassay

(improved capsule chem. anal. methods using **dioxetane**  
chemiluminescence)

IT Enzymes, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(improved capsule chem. anal. methods using **dioxetane**  
chemiluminescence)

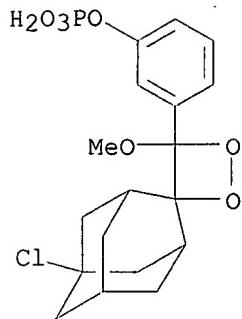
IT 9002-71-5, TSH

RL: ANT (Analyte); ANST (Analytical study)  
(improved capsule chem. anal. methods using **dioxetane**  
chemiluminescence)

IT 9001-78-9

RL: ANT (Analyte); BAC (Biological activity or effector, except adverse);  
BSU (Biological study, unclassified); ANST (Analytical study); BIOL

- (Biological study)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT 2321-07-5, Fluorescein 6358-69-6, Pyranine **142849-53-4**, CSPD  
**151346-37-1** **151346-38-2**  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT **6788-84-7DP**, 1,2-Dioxetane, derivs. **187655-25-0P**  
**187655-26-1P** **187655-27-2P**  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation); USES (Uses)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT **124-68-5**, 2-Amino-2-methyl-1-propanol 9002-93-1, Triton X-100  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT **67-56-1**, Methanol, reactions 99-06-9, 3-Hydroxybenzoic acid,  
 reactions 105-53-3, Diethyl malonate 107-07-3, 2-Chloroethanol,  
 reactions 109-78-4, 2-Cyanoethanol 143-33-9, Sodium cyanide  
 627-30-5, 3-Chloro-1-propanol 700-58-3, Adamantanone 10025-87-3,  
 Phosphoric trichloride 18162-48-6, tert-Butyldimethylsilyl chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT 133258-97-6P 133259-04-8P, 2-Chloroethyl-3-hydroxybenzoate  
 133259-05-9P 133259-06-0P 133259-07-1P 142149-09-5P 142149-11-9P  
 142149-12-0P 142149-13-1P 142149-14-2P 187655-28-3P 187655-29-4P  
 187655-30-7P 187655-31-8P 187655-32-9P 187655-33-0P 187655-34-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- IT **9001-78-9**  
 RL: ANT (Analyte); BAC (Biological activity or effector, except adverse);  
 BSU (Biological study, unclassified); ANST (Analytical study); BIOL  
 (Biological study)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- RN 9001-78-9 HCPLUS
- CN Phosphatase, alkaline (9CI) (CA INDEX NAME)
- \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*
- IT **142849-53-4**, CSPD **151346-37-1** **151346-38-2**  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)
- RN 142849-53-4 HCPLUS
- CN Phenol, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-  
 tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate, disodium salt  
 (9CI) (CA INDEX NAME)



## ●2 Na

RN 151346-37-1 HCPLUS

CN Phosphonium, tributyl[(ethenylphenyl)methyl]-, chloride, homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 42808-25-3

CMF C21 H36 P . Cl

CCI IDS

D1—CH=CH<sub>2</sub>(n-Bu)<sub>3</sub><sup>+</sup>P—CH<sub>2</sub>—D1● Cl<sup>-</sup>

RN 151346-38-2 HCPLUS

CN Phosphonium, [(ethenylphenyl)methyl]trioctyl-, chloride, polymer with  
tributyl[(ethenylphenyl)methyl]phosphonium chloride (9CI) (CA INDEX NAME)

CM 1

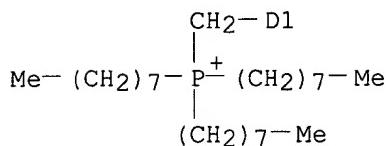
CRN 77519-20-1

CMF C33 H60 P . Cl

CCI IDS



D1—CH=CH<sub>2</sub>



● Cl<sup>-</sup>

CM 2

CRN 42808-25-3  
 CMF C21 H36 P . Cl  
 CCI IDS



D1—CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>P—CH<sub>2</sub>—D1

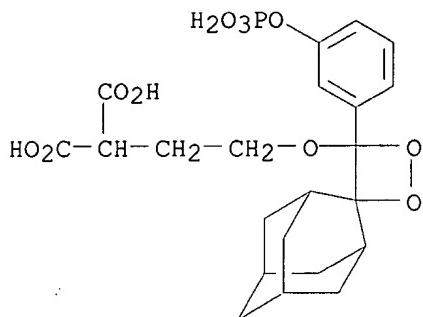
● Cl<sup>-</sup>

IT 6788-84-7DP, 1,2-Dioxetane, derivs. 187655-25-0P  
 187655-26-1P 187655-27-2P  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation); USES (Uses)  
 (improved capsule chem. anal. methods using dioxetane  
 chemiluminescence)  
 RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 187655-25-0 HCAPLUS

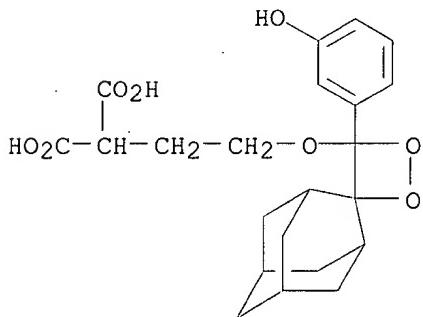
CN Propanedioic acid, [2-[[4-[3-(phosphonoxy)phenyl]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl]oxy]ethyl]-, tetrasodium salt (9CI) (CA INDEX NAME)



● 4 Na

RN 187655-26-1 HCAPLUS

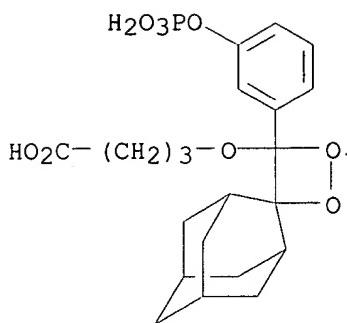
CN Propanedioic acid, [2-[[4-(3-hydroxyphenyl)spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl]oxy]ethyl]-, disodium salt (9CI) (CA INDEX NAME)



● 2 Na

RN 187655-27-2 HCAPLUS

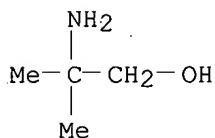
CN Butanoic acid, 4-[[4-[3-(phosphonoxy)phenyl]spiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl]oxy]-, trisodium salt (9CI) (CA INDEX NAME)



## ● 3 Na

IT 124-68-5, 2-Amino-2-methyl-1-propanol  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)

RN 124-68-5 HCPLUS  
 CN 1-Propanol, 2-amino-2-methyl- (8CI, 9CI) (CA INDEX NAME)



IT 67-56-1, Methanol, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (improved capsule chem. anal. methods using **dioxetane**  
 chemiluminescence)

RN 67-56-1 HCPLUS  
 CN Methanol (8CI, 9CI) (CA INDEX NAME)

H<sub>3</sub>C-OH

L81 ANSWER 5 OF 7 HCPLUS COPYRIGHT 2003 ACS  
 AN 1996:546523 HCPLUS  
 DN 125:269847  
 TI Enhancement of chemiluminescent assays  
 IN Bronstein, Irena Y.; Edwards, Brooks; Voyta, John C.  
 PA Tropix, Inc., USA  
 SO U.S., 21 pp., Cont.-in-part of U.S. Ser. No. 959,531.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 ICS G01N033-53  
 NCL 435006000  
 CC 9-5 (Biochemical Methods)  
 Section cross-reference(s): 7, 80  
 FAN.CNT 16  
 PATENT NO. KIND DATE APPLICATION NO. DATE

PI US 5547836 A 19960820 US 1993-31471 19930315  
 US 5112960 A 19920512 US 1990-574786 19900830  
 JP 04124185 A2 19920424 JP 1990-239764 19900910  
 JP 11021285 A2 19990126 JP 1996-86324 19910830  
 US 5330900 A 19940719 US 1991-806928 19911212  
 US 5639907 A 19970617 US 1992-959531 19921013  
 WO 9421821 A1 19940929 WO 1994-US2549 19940315  
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 LK, LV, MD, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, TJ, TT, UA,  
 UZ, VN  
 RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
 BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG  
 AU 9464449 A1 19941011 AU 1994-64449 19940315  
 EP 689611 A1 19960103 EP 1994-912204 19940315  
 EP 689611 B1 20020130  
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 JP 08507694 T2 19960820 JP 1994-521100 19940315  
 EP 1120652 A1 20010801 EP 2001-102819 19940315  
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 AT 212722 E 20020215 AT 1994-912204 19940315  
 US 5543295 A 19960806 US 1994-233085 19940425  
 US 5679802 A 19971021 US 1995-433996 19950504  
 US 5654154 A 19970805 US 1996-588260 19960118  
 US 5831102 A 19981103 US 1996-598353 19960208  
 US 5994073 A 19991130 US 1997-850009 19970501  
 US 5856522 A 19990105 US 1997-882330 19970625

PRAI US 1990-574786 A3 19900830  
 US 1991-806928 A2 19911212  
 US 1992-959531 A2 19921013  
 US 1989-367772 B3 19850515  
 US 1986-889823 A1 19860724  
 US 1987-140197 B2 19871231  
 US 1990-559152 A2 19900725  
 JP 1991-518245 A3 19910830  
 US 1993-31471 A 19930315  
 EP 1994-912204 A3 19940315  
 WO 1994-US2549 W 19940315  
 US 1994-233085 A1 19940425  
 US 1995-433996 A1 19950504  
 US 1996-588260 A1 19960118

OS MARPAT 125:269847

AB Chemiluminescent bioassays for the detection or quantitation of an analyte in a sample use 1,2-dioxetanes as substrates for the enzyme of an enzyme complex that binds to the analyte. The chemiluminescence obtained from the decompn. of the dioxetane triggered by the enzyme through the formation of the corresponding 1,2-dioxetane oxyanion of the enzyme complex is enhanced by the addn. of TBQ [poly(vinylbenzyltributylammonium chloride)] as an enhancement agent. Other polymeric quaternary onium salts can be used as enhancement agents in conjunction with enhancement additives which improve the ability of the enhancement agent to form hydrophobic regions in the aq. sample, in which regions the 1,2-dioxetane oxyanion and its chemiluminescent decompn. products can be sequestered. A kit for performing such assays is also provided.

ST chemiluminescence assay bioassay enzyme dioxetane substrate

IT Quaternary ammonium compounds, uses  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (Lanoquat; chemiluminescent bioassays using enzymes with  
 dioxetane substrates and enhancement agents)

IT Alcohols, uses  
 Detergents  
 Enzymes

## Phosphonium compounds

**Polymers**, uses

Salts, uses

Sulfonium compounds

Surfactants

Turpentine

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(chemiluminescent bioassays using enzymes with **dioxetane**  
substrates and enhancement agents)

## IT Spectrochemical analysis

(chemiluminescence, chemiluminescent bioassays using enzymes  
with **dioxetane** substrates and enhancement agents)

## IT Onium compounds

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(quaternary, salts, chemiluminescent bioassays using enzymes with  
**dioxetane** substrates and enhancement agents)

## IT Quaternary ammonium compounds, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(tri-C8-10-alkylmethyl, chlorides, chemiluminescent bioassays using  
enzymes with **dioxetane** substrates and enhancement agents)

IT 57-09-0, CTAB 67-63-0, 2-Propanol, uses 121-54-0, Benzethonium chloride 122-18-9, Benzyldimethylcetyl ammonium chloride 123-96-6, 2-Octanol 139-08-2, Benzyldimethyltetradecyl ammonium chloride 151-21-3, SDS, uses 1464-44-4 1652-63-7, FC 135 4688-40-8, Sodium benzyl sulfate 7281-04-1, Benzyldimethylodecyl ammonium bromide 7585-39-9, .beta.-Cyclodextrin 9002-89-5, Polyvinyl alcohol 9002-92-0, PO 23LE 9002-93-1, Triton x 100 9002-98-6, Polyethylenimine 9002-98-6D, Polyethylenimine, benzylated 9003-05-8D, Polyacrylamide, aminomethylated 9003-08-1, Aerotex M-3 9003-09-2, Polyvinyl methyl ether 9005-64-5, Tween 20 9005-65-6, Tween 80 9014-92-0 9017-80-5, Poly(vinylbenzyltrimethylammonium chloride 9036-19-5, Nonidet p-40 9042-14-2, Dextran sulfate 14937-45-2, Hexadecyltributyl phosphonium bromide 24979-97-3, Polytetrahydrofuran 25104-37-4, Polyvinyl ethyl ether 25155-30-0, Sodium dodecyl benzenesulfonate 25322-68-3 25322-69-4, Polypropylene glycol 25805-17-8, Poly(2-ethyl-2-oxazoline) 25988-97-0, Agefloc B50 28728-55-4, Polybrene 29836-26-8 39288-98-7, DAXAD 53754-72-6, Poly-1,1-dimethyl-3,5-dimethylenepiperidinium chloride 54692-47-6, Zelec DP 56602-33-6, BOP 72852-29-0, Poly(vinylbenzyltributylammonium chloride) 75621-03-3, CHAPS 78564-79-1, Avitex ML 82473-24-3, CHAPSO 92183-41-0, Celquat H100 106392-12-5, Pluronic 122 124951-96-8, AMPPD 135781-07-6 142849-53-4, CSPD 146908-11-4, Avitex E 161697-30-9 161697-31-0 161697-48-9 162534-60-3, Agefloc A50HV 162534-61-4, Hipofix DDD 162534-62-5, Hipofix 491 162534-63-6, Hipofix DD-NF 162534-65-8, Celquat SC240 182176-66-5, Avitex DN 182213-96-3 182241-24-3

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(chemiluminescent bioassays using enzymes with **dioxetane**  
substrates and enhancement agents)

## IT 6788-84-7D, 1,2-Dioxetane, derivs.

RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)  
(chemiluminescent bioassays using enzymes with **dioxetane**  
substrates and enhancement agents)

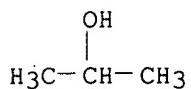
## IT 67-63-0, 2-Propanol, uses 9017-80-5,

Poly(vinylbenzyltrimethylammonium chloride 72852-29-0,  
Poly(vinylbenzyltributylammonium chloride) 124951-96-8, AMPPD 135781-07-6 142849-53-4, CSPD 161697-30-9

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(chemiluminescent bioassays using enzymes with **dioxetane**  
substrates and enhancement agents)

## RN 67-63-0 HCPLUS

CN 2-Propanol (9CI) (CA INDEX NAME)



RN 9017-80-5 HCPLUS

CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3

CMF C12 H18 N . Cl

CCI IDS



D1-CH=CH2

Me3+N-CH2-D1

● Cl-

RN 72852-29-0 HCPLUS

CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer  
(9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5

CMF C21 H36 N . Cl

CCI IDS

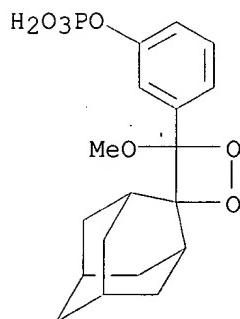


D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

RN 124951-96-8 HCAPLUS  
 CN Phenol, 3-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo{3.3.1.13,7}decan]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)

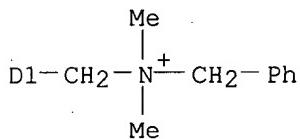
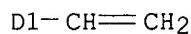


●2 Na

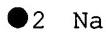
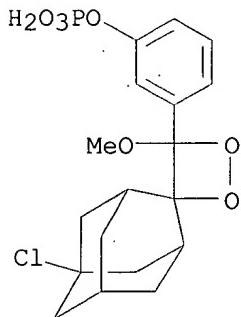
RN 135781-07-6 HCAPLUS  
 CN Benzenemethanaminium, ar-ethenyl-N,N-dimethyl-N-(phenylmethyl)-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62017-62-3  
 CMF C18 H22 N . Cl  
 CCI IDS



RN 142849-53-4 HCAPLUS  
 CN Phenol, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decان]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



RN 161697-30-9 HCAPLUS  
 CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, polymer with ar-ethenyl-N,N,N-trihexylbenzenemethanaminium chloride (9CI) (CA INDEX NAME)

CM . 1

CRN 62017-56-5  
 CMF C21 H36 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

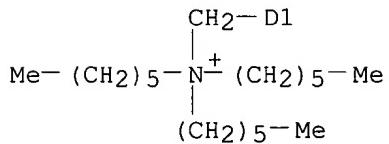
● Cl<sup>-</sup>

CM 2

CRN 59535-22-7  
 CMF C27 H48 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>



● Cl<sup>-</sup>

IT 6788-84-7D, 1,2-Dioxetane, derivs.

RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)  
 (chemiluminescent bioassays using enzymes with dioxetane substrates and enhancement agents)

RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1995:511642 HCAPLUS  
 DN 122:260574  
 TI Buffer and substrate and sensitivity enhancer for **alkaline phosphatase** determination  
 IN Sugiyama, Masami; Isomura, Mitsuo; Saruta, Hiroko; Ashihara, Yoshihiro  
 PA Fujirebio Kk, Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese  
 IC ICM C12Q001-42  
 CC 9-15 (Biochemical Methods)

FAN.CNT 1

|    | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 07031499 | A2   | 19950203 | JP 1993-200171  | 19930721 |
|    | JP 3146778  | B2   | 20010319 |                 |          |

PRAI JP 1993-200171 19930721

OS MARPAT 122:260574

AB The disclosed buffer is a deriv. of amine or aminosulfonic acid, the substrate is a deriv. of AMPPD, and the sensitivity enhancer is a **polymer** of deriv. of trialkyl(vinylbenzyl)ammonium salt. In example, AMPPD (substrate) and polyvinylbenzyl(benzyldimethylammonium)chloride (BDMQ; sensitivity enhancer) were used in conjunction to DEA-HCl, DEA-BES, TEA-BES, DEA-MOPS, DEA-CAPS, DEA-TAPS, and DEA-CAPSO for quantification of **alk. phosphatase** in an immunoassay with immobilized anti-.alpha.-fetoprotein (or TSH) and phosphatase-labeled anti-.alpha.-fetoprotein (or TSH) for .alpha.-fetoprotein (or TSH) detn.

ST **alk phosphatase** buffer substrate enhancer immunoassay

IT Antibodies

RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (alk. phosphatase-labeled antibody to TSH or  
 .alpha.-fetoprotein and buffer and substrate and sensitivity enhancer  
 for alk. phosphatase detn.)

IT Amines, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (alkyl derivs.; amine deriv. buffer and AMPPD substrate and  
 sensitivity-enhancing trialkyl(vinylbenzyl)ammonium salt  
 polymer are used for alk. phosphatase  
 detn.)

IT Fetoproteins

RL: ANT (Analyte); ANST (Analytical study)  
 (.alpha.-, alk. phosphatase-labeled antibody to TSH  
 or .alpha.-fetoprotein and buffer and substrate and sensitivity  
 enhancer for alk. phosphatase detn.)

IT 9002-71-5, TSH

RL: ANT (Analyte); ANST (Analytical study)  
 (alk. phosphatase-labeled antibody for TSH detn.  
 and buffer and substrate and sensitivity enhancer for alk.  
 phosphatase detn.)

IT 102-71-6, Triethanolamine, analysis 110-85-0D, Piperazine,  
 sulfonyl derivs.; salts 110-91-8D, Morpholine, sulfonyl derivs.; salts  
 1132-61-2, MOPS 1135-40-6, CAPS 9017-80-5D,  
 Vinylbenzyltrimethylammonium chloride **polymer**, analogs  
 10191-18-1, BES 14426-21-2, Diethanolamine hydrochloride 29915-38-6,  
 TAPS 72852-29-0D, analogs 73463-39-5, CAPSO  
**122341-56-4D**, derivs.; salts **135781-07-6**  
**142456-88-0D**, derivs.; salts  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)

(amine deriv. buffer and AMPPD substrate and sensitivity-enhancing trialkyl(vinylbenzyl)ammonium salt **polymer** are used for alk. phosphatase detn.)

IT 9001-78-9D, Alkaline phosphatase, alkyl derivs.

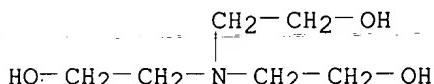
RL: ARU (Analytical role, unclassified); ANST (Analytical study) (amine deriv. buffer and AMPPD substrate and sensitivity-enhancing trialkyl(vinylbenzyl)ammonium salt **polymer** are used for alk. phosphatase detn. in immunoassay)

IT 102-71-6, Triethanolamine, analysis 9017-80-5D, Vinylbenzyltrimethylammonium chloride **polymer**, analogs 72852-29-0D, analogs 122341-56-4D, derivs.; salts 135781-07-6 142456-88-0D, derivs.; salts

RL: ARU (Analytical role, unclassified); ANST (Analytical study) (amine deriv. buffer and AMPPD substrate and sensitivity-enhancing trialkyl(vinylbenzyl)ammonium salt **polymer** are used for alk. phosphatase detn.)

RN 102-71-6 HCPLUS

CN Ethanol, 2,2',2'''-nitrilotris- (9CI), (CA INDEX NAME)



RN 9017-80-5 HCPLUS

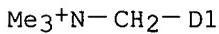
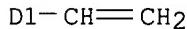
CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3

CMF C12 H18 N . Cl

CCI IDS



RN 72852-29-0 HCPLUS

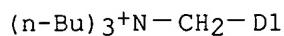
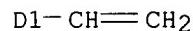
CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5

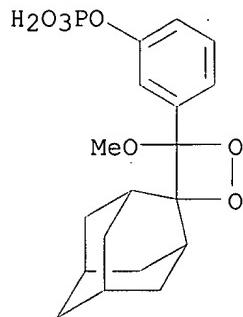
CMF C21 H36 N . Cl

CCI IDS



RN 122341-56-4 HCPLUS

CN Phenol, 3-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate (9CI) (CA INDEX NAME)



RN 135781-07-6 HCPLUS

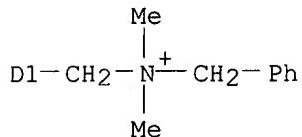
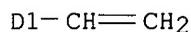
CN Benzenemethanaminium, ar-ethenyl-N,N-dimethyl-N-(phenylmethyl)-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

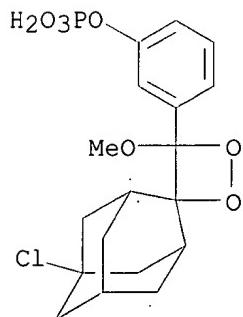
CRN 62017-62-3

CMF C18 H22 N . Cl

CCI IDS



RN 142456-88-0 HCAPLUS  
 CN Phenol, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decان]-4-yl)-, dihydrogen phosphate (9CI) (CA INDEX NAME)



IT 9001-78-9D, Alkaline phosphatase, alkyl derivs.  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (amine deriv. buffer and AMPPD substrate and sensitivity-enhancing trialkyl(vinylbenzyl)ammonium salt **polymer** are used for alk. phosphatase detn. in immunoassay)  
 RN 9001-78-9 HCAPLUS  
 CN Phosphatase, alkaline (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L81 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1995:169405 HCAPLUS  
 DN 122:260545  
 TI Additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates  
 IN Bronstein, Irena Y.; Edwards, Brooks; Voyta, John C.  
 PA Tropix, Inc., USA  
 SO PCT Int. Appl., 61 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English

IC ICM C12Q001-68

CC 9-5 (Biochemical Methods)

FAN.CNT 16

|      | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI   | WO 9421821                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1   | 19940929 | WO 1994-US2549  | 19940315 |
|      | W: AU, BB, BG, BR, BY, CA, CN, CZ, FI, GE, HU, JP, KG, KP, KR, KZ, LK, LV, MD, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, TJ, TT, UA, UZ, VN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
|      | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |          |                 |          |
|      | US 5547836                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A    | 19960820 | US 1993-31471   | 19930315 |
|      | AU 9464449                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1   | 19941011 | AU 1994-64449   | 19940315 |
|      | EP 689611                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | A1   | 19960103 | EP 1994-912204  | 19940315 |
|      | EP 689611                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B1   | 20020130 |                 |          |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
|      | JP 08507694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | T2   | 19960820 | JP 1994-521100  | 19940315 |
|      | AT 212722                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | E    | 20020215 | AT 1994-912204  | 19940315 |
|      | US 5856522                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A    | 19990105 | US 1997-882330  | 19970625 |
| PRAI | US 1993-31471                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A    | 19930315 |                 |          |
|      | US 1990-574786                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A3   | 19900830 |                 |          |
|      | US 1991-806928                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A2   | 19911212 |                 |          |
|      | US 1992-959531                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A2   | 19921013 |                 |          |
|      | WO 1994-US2549                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | W    | 19940315 |                 |          |
|      | US 1995-433996                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A1   | 19950504 |                 |          |
| OS   | MARPAT 122:260545                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |          |
| AB   | Disclosed is additives for enhancing chemiluminescent bioassays for the presence or concn. of an analyte in a sample use <b>1,2-dioxetanes</b> as substrates for the enzyme of an enzyme complex that bind to the analyte. The additives include surfactant (e.g. Tween 20), solvent (e.g. isopropanol, polyvinyl alc.), and water-sol. <b>polymers</b> (e.g. <b>polymeric</b> quaternary onium salts). The chemiluminescence obtained from the decompn. of the <b>dioxetane</b> triggered by the enzyme through the formation of the corresponding <b>1,2-dioxetane</b> oxyanion of the enzyme complex is enhanced by the addn. of poly(vinylbenzyltributylammonium chloride) as an enhancement agent. Other <b>polymeric</b> quaternary onium salts can be used as enhancement agents in conjunction with enhancement additives which improve the ability of the enhancement agent to form hydrophobic regions in the aq. sample, in which regions the <b>1,2-dioxetane</b> oxyanion and its chemiluminescent decompn. products can be sequestered. A kit for performing such assays is also provided. |      |          |                 |          |
| ST   | additive chemiluminescence bioassay enhancement; <b>polymeric</b> quaternary ammonium salt; sulfonium <b>polymeric</b> quaternary salt; phosphonium <b>polymeric</b> quaternary salt; surfactant solvent detergent additive chemiluminescence bioassay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| IT   | Detergents<br>Solvents<br>Surfactants<br>(additives for enhancing chemiluminescent assays using <b>1,2-dioxetanes</b> as substrates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |
| IT   | Phosphonium compounds<br>RL: MOA (Modifier or additive use); USES (Uses)<br>( <b>polymeric</b> ; additives for enhancing chemiluminescent assays using <b>1,2-dioxetanes</b> as substrates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| IT   | <b>Polymers</b> , uses<br>RL: MOA (Modifier or additive use); USES (Uses)<br>(water-sol.; additives for enhancing chemiluminescent assays using <b>1,2-dioxetanes</b> as substrates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |
| IT   | Sulfonium compounds<br>RL: MOA (Modifier or additive use); USES (Uses)<br>( <b>polymers</b> , quaternary and salts; additives for enhancing chemiluminescent assays using <b>1,2-dioxetanes</b> as substrates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |          |

IT Quaternary ammonium compounds, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (polymers, salts; additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)

IT Quaternary ammonium compounds, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (tri-C8-10-alkylmethyl, chlorides, Adogen 464; additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)

IT 6788-84-7, 1,2-Dioxetane 124951-96-8, AMPPD  
**142849-53-4**, CSPD  
 RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)

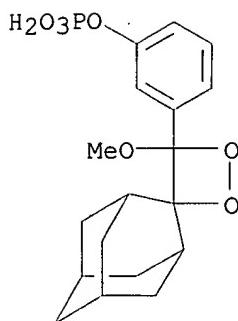
IT 57-09-0, Cetyl trimethyl ammonium bromide 67-63-0, Isopropanol, uses 121-54-0, Benzethonium chloride 122-18-9, Benzylidimethylcetylammmonium chloride 123-96-6, 2-Octanol 151-21-3, SDS, uses 1464-44-4 7585-39-9, .beta. Cyclodextrin 9002-89-5, Poly(vinyl alcohol) 9002-92-0, Polyoxyethylene-23-lauryl ether 9002-93-1, Triton X 100 9002-98-6, PEI 9002-98-6D, benzylated 9003-05-8D, Polyacrylamide, Aminomethylated 9003-08-1, Aerotex M-3 9003-09-2, Poly(vinyl methyl ether) 9005-64-5, Tween 20 9005-65-6, Tween 80 9017-80-5, Poly(vinylbenzyltrimethylammonium chloride) 9042-14-2, Dextran sulfate 14937-45-2, Hexadecyltributylphosphonium bromide 24979-97-3, Poly(tetrahydrofuran) 25104-37-4, Poly(vinyl ethyl ether) 25155-30-0, Sodium dodecylbenzenesulfonate 25322-68-3, Poly(ethylene oxide) 25322-69-4, Polypropylene glycol 25805-17-8, Poly(2-ethyl-2-oxazoline) 28728-55-4, Polybrene 39288-98-7, DAXAD 41444-50-2, Octyl glucoside 53754-72-6 54692-47-6, Zelec DP 56602-33-6, BOP 62227-68-3 72852-29-0 75621-03-3, CHAPS 77322-08-8, FC-15 78564-79-1, Avitex ML 82473-24-3, CHAPSO 92183-41-0, Celquat H 100 106392-12-5, Pluronic 123 135781-07-6 153569-63-2, Agefloc B 50 161697-30-9 161697-31-0 161697-46-7 161697-47-8 161697-48-9 162534-59-0, Agefloc A 50 162534-60-3, Agefloc A 50HV 162534-61-4, Hipofix DDD 162534-62-5, Hipofix 491 162534-63-6, Hipofix DD-NF 162534-64-7, Nonidet P 400 162534-65-8, Celquat SC 240  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)

IT 6788-84-7, 1,2-Dioxetane 124951-96-8, AMPPD  
**142849-53-4**, CSPD  
 RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)

RN 6788-84-7 HCPLUS  
 CN 1,2-Dioxetane (6CI, 8CI, 9CI) (CA INDEX NAME)

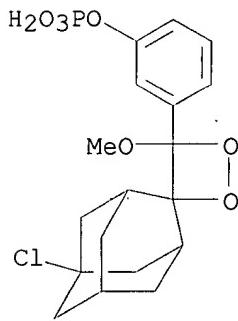
O—O

RN 124951-96-8 HCPLUS  
 CN Phenol, 3-(4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decan]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



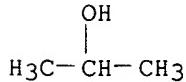
●2 Na

RN 142849-53-4 HCAPLUS  
 CN Phenol, 3-(5'-chloro-4-methoxyspiro[1,2-dioxetane-3,2'-tricyclo[3.3.1.13,7]decyl]-4-yl)-, dihydrogen phosphate, disodium salt (9CI) (CA INDEX NAME)



●2 Na

IT 67-63-0, Isopropanol, uses 9017-80-5,  
 Poly(vinylbenzyltrimethylammonium chloride) 72852-29-0  
 135781-07-6 161697-30-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (additives for enhancing chemiluminescent assays using 1,2-dioxetanes as substrates)  
 RN 67-63-0 HCAPLUS  
 CN 2-Propanol (9CI) (CA INDEX NAME)



RN 9017-80-5 HCAPLUS  
 CN Benzenemethanaminium, ar-ethenyl-N,N,N-trimethyl-, chloride, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 26616-35-3  
 CMF C12 H18 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>

Me<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

RN 72852-29-0 HCPLUS  
 CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, homopolymer  
 (9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5  
 CMF C21 H36 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

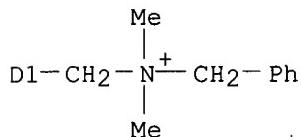
RN 135781-07-6 HCPLUS  
 CN Benzenemethanaminium, ar-ethenyl-N,N-dimethyl-N-(phenylmethyl)-, chloride,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62017-62-3  
 CMF C18 H22 N . Cl  
 CCI IDS



D1-CH=CH<sub>2</sub>



● Cl<sup>-</sup>

RN 161697-30-9 HCPLUS

CN Benzenemethanaminium, N,N,N-tributyl-ar-ethenyl-, chloride, polymer with ar-ethenyl-N,N,N-trihexylbenzenemethanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 62017-56-5

CMF C21 H36 N . Cl

CCI IDS



D1-CH=CH<sub>2</sub>

(n-Bu)<sub>3</sub><sup>+</sup>N-CH<sub>2</sub>-D1

● Cl<sup>-</sup>

CM 2

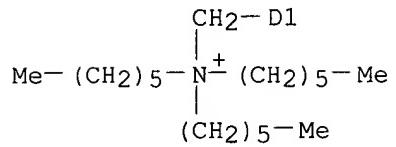
CRN 59535-22-7

CMF C27 H48 N . Cl

CCI IDS



D1—CH=CH<sub>2</sub>



● Cl<sup>-</sup>